AMERICAN BEE JOURNAL

The Oldest Bee Journal in the English Language

ESTABLISHED BY SAMUEL WAGNER IN 1861

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CONTENTS

MONTH OF JUNE, 1938

Editorial ... 255

My Two-Queen System—*I. L. Swain* ... 258

Honey Getting—Wax Separators—Section II, Part XII—*E. L. Sechrist* ... 260

Honey In the "Primitive Physic" of John Wesley—*H. A. Schuette* ... 262

Using Noise to Settle the Absconding Swarm—*R. Hamilton* ... 265

Nectar Secretion—*Antonios G. Petropoulos* 266

Swarms as They Often Occur ... 268

A Plea for the Basswood—*C. H. Pease* ... 270

The Insecticide Problem —*Mrs. Laura Shephard* ... 271

Maryland to Miami—*M. G. Dadant* ... 272

All Around the Bee Yard—*G. H. Cale* ... 279

The Editor's Answers ... 281

Meetings and Events ... 282

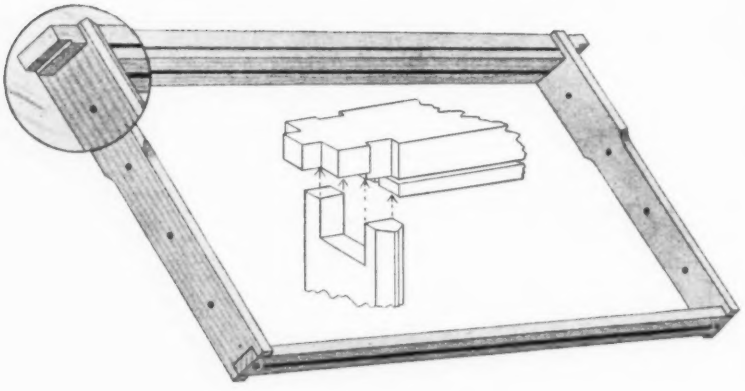
Crop and Market Report—*M. G. Dadant* 289

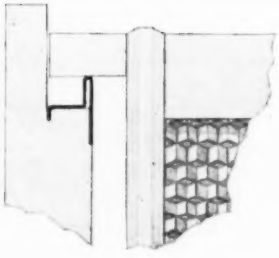
The Postscript—*Frank C. Pellett* ... 294

INDEX TO DISPLAY ADVERTISERS

Alabama Apiaries ... 293
Alamance Bee Co. ... 292
American Bee Journal ... 296
American Honey Institute 292
American Pigeon Journal 280
American Rabbit Journal 251
Beekeepers Item ... 280
Bees and Honey ... 278
Blue Bonnet Apiaries ... 283
Bolling Bee Co. ... 286
Brand, W. T. ... 296
Brock Store ... 280
Burleson & Son, Thos. C. .. 280
Calvert Apiaries ... 251
Citronelle Bee Co. ... 285
Coffey Apiaries, Inside front cover.
Continental Can Co. ... 288
Crowville Apiaries ... 286
Cutts & Sons, J. M. ... 287
Dadant & Sons ... 252
Daniels Apiaries ... 293
Davis Bros. ... 283
Dittmer Co., Gus ... 285
Dusek Co., Joseph ... 278
Eells Honey & Bee Co. ... 295
Ellison & Sons, C. G. ... 293
Forehand, N. ... 287
Forehand & Sons, W. J. ... 280
Foster, Wade H. ... 286
Garon Bee Co. ... 251
Goat World ... 280
Gooch Apiaries ... 293
Graydon Bros ... 280
Great Northern Railway Co. ... 278
Guilford Apiaries ... 293
Gulf Coast Bee Co. ... 251
Gutekunst, Emil W. ... 280
Highland Apiaries ... 283
Hodgson & Sons, S. P. ... 283
Holder Apiaries ... 250
Honey Bee Apiaries ... 285
Ideal Apiaries ... 286
Iverson Honey Co. ... 289
Jensen's Apiaries ... 293
Jewett & Sherman ... 289
Joy Apiaries ... 292
Kelley, Walter T. ... 295
Knight, Jasper, Inside back cover.
Koehnen Apiaries ... 286
Latham, Allen ... 292
Lewis Co., G. B. ... 254
Little Bros. ... 293
Lotz Co., August, Inside front cover.
McConnell, Herman ... 287
McKay, Alonzo ... 292
McVay, J. F. ... 278
Marshfield Mfg. Co., Inside back cover.
Merrill Bee Co. ... 250
Middle Tennessee Apiaries 285
Moore, J. P. ... 278
Mott, E. E. ... 292
Muth Co., F. W. ... 250
Overbey Apiaries ... 280
Pinard, A. B. ... 280
Puett Co. ... 287
Root Co. of Chicago, A. I., Inside back cover.
Root Co. of Iowa, A. I., Inside back cover.
Root Co. of Ohio, A. I., 278, Back cover.
Rosedale Hutterian Mutual Corp. ... 285
Rossman & Long ... 293
Rusch & Son Co., A. H. ... 293
Short, H. C. ... 292
Spoerri Apiaries ... 292
St. Romain's "Honey Girl" Apiaries ... 293
Standard Churn Co., Inside front cover.
Standard Lumber Co. ... 278
Stevenson's Apiaries ... 292
Stover Apiaries ... 249
Taylor Apiaries ... 293
Victor Apiaries ... 280
Weaver Apiaries ... 285
Woodman Co., A. G. ... 251, 278
York Bee Co. ... 295

WHEN YOU PAY FOR STRONG FRAMES WHY NOT GET THEM?





The upper picture shows the Lewis end spacing construction that needs no staple for either short or long top bar style. The center picture shows the strong lug in every Lewis frame.

WHAT is the weakest part of a frame? Ask any old-timer or commercial producer and he will tell you — the lugs or ends of the top bar. Perhaps there is no greater nuisance than to have a lug break on a frame filled with perfect comb or full of brood or honey. It's like a sore thumb!

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American Bee Journal

Vol. LXXVIII—No. 6 Hamilton, Illinois, June, 1938 Monthly, $1.00 a year

Summer Meeting at Atlantic

SINCE announcement was made of the summer meeting at Dubuque on June 17 and 18, arrangements have been made by Iowa beekeepers for another summer meet to be held at the co-operative experimental apiary at Atlantic, on Thursday, July 14.

The Iowa Beekeepers' Association has extended its support to this experimental project from the first and so much interest has continued to be manifested that another meeting has been decided upon.

It is the plan to make the occasion much like the one held there two years ago when the State Horticultural Society sponsored the meeting with fruit and vegetable growers also participating.

The promising progress with the search for bees which are resistant to American foulbrood has brought many visitors to Atlantic and the new Zofka red clover frequently mentioned in this magazine is attracting similar interest. Beekeepers generally are invited to join with the Iowa organization for a day at the Pellett Gardens where the experiments are carried on.

Visitors should bring a basket lunch since the apiary is about three miles to the nearest restaurant. The Association expects to serve coffee. We hope to present the program in our July issue.

—ABJ—

Bees Come Back to the Farms

RECENT developments in the agricultural field have shown a tendency to reverse the long-time trend toward highly specialized beekeeping. It has been but a few years since the fruit growers discovered how dependent they are upon the bees for the pollination of their crops. More and more bees are wanted each year by commercial fruit growers.

Where beekeepers are in position to provide the bees when needed, the fruit growers seem to prefer to depend upon them for the service. In hundreds of cases, however, the fruit growers have found it necessary to become beekeepers in order to meet a pressing need for bees in the orchard.

Now we are beginning to hear that farmers also must make some provision for bees if they are to continue a proper rotation of crops. F. B. Paddock, Iowa State Apiarist, has been saying for some time that a well balanced agriculture under present day conditions is impossible without honeybees. Others are coming to recognize that his contention is correct.

A few days ago this writer met a large landowner who stated that he raises about 500 acres of sweet clover on his own land and

From the office of the managing director of the marketing agreement for shippers of package bees and queens, J. M. Robinson, of Auburn, Alabama, comes the report on shipments of bees and queens for 1937.

The total number of queens shipped during the year was 161,989 which included the queens, of course, which were put in packages.

There were 207,060 pounds of bees shipped during the year.

Alabama still ranks at the top of the list in volume of shipment, although Georgia is a close second and Louisiana, Mississippi, Texas and California follow in order.

About the same amount of bees and queens are shipped during April as during May, the total being approximately $100,000 worth each month with June a weak third, showing $27,000 worth of shipments.

The Managing Director suggests that the report is not complete inasmuch as only 56 per cent of the breeders reported. It is presumed, however, that most of the larger breeders are included in the report so that it does represent somewhere near the total volume of shipments of bees and queens for the year.

♦

On April 9 there were scenes of great acitivity at my bee yard, but it was not the activity of the bees, for the day was cloudy and a light rain was falling. The Third Battalion, Second Infantry, United States Army camped at the edge of the apiary.

Arthur Lundstrom,
Michigan.

[The ancients are known to have routed the enemy by pouring bees down upon them. Perhaps these doughty warriors might themselves have been made to turn tail and flee, had the day been warm and the bees opposed to sharing their quarters.—Editor.]

♦

"Ich Koche Mit Honig" This is the title in German of a book published at Innsbruck, by Frau Frida Aisch, Austria. We hope later to be able to test and present some of these recipes and also to have a translation made of the book, so that it may possibly be available in English, eventually.

This book is delightfully gotten up and German reading subscribers may secure copies through this office for fifty cents.

that he is securing twice that number of colonies of bees to insure pollination of the plants and a profitable seed crop.

Dr. J. N. Martin in a radio broadcast over station WOI, recently called attention to the fact that if farmers plant the acreage of red clover which the soil conservation act calls for, more than a million hives of bees will be needed to pollinate the blossoms.

Too long ignored as unimportant, the honeybee is coming to be regarded as an essential part of American agriculture and there is every indication of a rapid expansion in beekeeping in the years ahead. It is important that this growth be properly supervised to the end that a sound development results.

—ABJ—

That New Bee

FOR some time Dr. Lloyd Watson has been talking of the new bee which is to be developed by scientific breeding and which is to combine many desirable traits.

Facts coming to light in connection with the cooperative experiment in disease resistance now entering its fourth year at the Pellett Gardens at Atlantic show very clearly the need for such a breeding program.

Some of the bees under test have made a remarkable showing in their ability to resist American foulbrood but they are usually lacking in some desirable quality. To combine disease resistance with gentleness, hardiness, good honey gathering ability, and attractive color is a task worthy the best efforts of a master breeder. That it can be done is hardly to be doubted in the light of the marvels accomplished by breeding in other fields. Whether it will be done depends upon the interest of the beekeepers. With sufficient demand the effort is likely to continue until success is assured.

—ABJ—

The Zofka Red Clover

A LARGE volume of letters continue to come to us asking for seed of the Zofka red clover. Since the plant is a new development, but little seed is available anywhere. Dr. Zofka has worked for many years in the effort to select a strain of red clover with short corolla tubes to permit the honeybees to reach the nectar. The result is encouraging since the flower tubes are definitely shorter and, in many cases, are less in depth than the length of the tongue of the honeybee.

It should be borne in mind, however, that it takes a long time to fix a new character. As yet there is great variation in the depth of the flower tubes of this plant. They vary all the way from five to eight millimeters in depth and it is probable that much selection will be necessary before this short flower tube is permanently fixed.

If planted near ordinary red clover where honeybees could visit first one and then the other it is probable that cross pollination would quickly result in reversion to the former size.

Letters received from Europe advise us that the supply of seed

A new bulletin entitled "Ladino Clover" has recently been issued by the Agricultural Extension Service of the California College of Agriculture at Berkeley.

Ladino clover is similar to the eastern white Dutch clover but more vigorous in growth and suited only to wet lands. In California it succeeds only under irrigation. In suitable situations it is a valuable forage crop and an important source of bee pasture.

When first brought to this country from Italy in 1903 it was given a trial in the eastern states and proved unsatisfactory. Later, about 1911, it was again introduced and planted in Idaho where it found a favorable environment. Since that time the plant has gradually spread over the West. It is now to be found in many widely separated localities but deserves to be far better known.

We would suggest that readers living in irrigated regions send to the California College of Agriculture for the bulletin and give this clover a trial.

B. A. Madson and J. Earl Coke are the authors of the bulletin.

♦

My knowledge of bees is very meager, as I have been in the business only two years. My first trouble started the day the bees arrived. The directions on the packages said to feed the bees sugar syrup. I did. Half the bees were stuck together for a few days. When they did get loose, some had only three or four legs and half their number of wings. The second time I bought packages, I knew how to feed them.

The first few times I handled bees I was stung. In a few moments my eyes were shut and it was hard for me to breathe. The remedy was discovered by accident. I took a few stingers out of my coat and put them in my arm. The effect was mild, and after doing this a few times, I was practically immune.

Orval Silbaugh,
Wisconsin.

[This brings up the dangerous discrepancy between the way people write who have considerable information about any practical subject and the way it is interpreted by the beginner who has no information at all. Whenever those of us who know bees write about them, we leave out much that would help the beginner. When one is engaged in teaching others to do something, it is necessary to explain very carefully, including, often, what to the writer may seem to be details of small importance.

Mr. Silbaugh's suggestions about stings often works, but the procedure is not always successful.—Editor.]

♦

Good flow on. Prospects best in 10 years.
L. A. Schott,
Missouri.

is very short and entirely insufficient to meet the demand. Only very small lots are to be found when any can be had. Thus our effort to secure seed from abroad to meet the numerous requests has failed.

It seems probable also that selection will be needed to develop a strain suited to American climatic conditions, while establishing the short flower tube as a permanent character. Small lots of seed are now in the hands of several specialists who are working with red clover and it is hoped that their combined efforts will bring substantial results.

In the meantime a larger area has been planted to this crop at the experimental apiary of the American Bee Journal at Atlantic, Iowa. It will be given further test and every effort made to increase the supply.

———ABJ———

Drug Plants for Bee Pasture

SINCE several plants commonly used in the drug trade are also good honey plants, the question is raised whether the combination of cultivating drug plants with beekeeping might not be profitable. As a rule none of the drug plants are in sufficient demand to justify their general cultivation but there may be some opportunity for profit for the individual who wishes to add something to his income in this way.

There have been several references to coriander in this magazine of late. Coriander is reputed to be a valuable source of honey in some old world countries and large quantities of the seed are imported for use in America. While it is probable that few are so situated as to make its cultivation profitable, it may well be that in exceptional cases it may pay.

While dandelion is cultivated in many market gardens for the leaves to be used for greens, the root only is used in medicine. These are dug in the fall of the second year thus offering one season of bloom for the bees. One thousand or more pounds of dry roots have been harvested per acre from second year plants. Prices vary but the last quotation seen by the writer was about 18 cents per pound.

Catnip is one of the most famous among honey plants and extravagant claims have been made concerning the amount of honey which might be harvested from an acre of this crop. Under favorable conditions as much as a ton of dry flowering tops can be harvested per acre. At 20 cents per pound there is some possibility of profit in the crop. It is cut with a mowing machine and dried in the shade to preserve the green color.

If the honey yield is as large as some believe it to be, it would seem that a beekeeper who is favorably situated might find it profitable to combine the growing of this plant for the drug trade and for pasture for his bees.

Horehound, lavender, melissa, sage, and thyme are other drug plants worthy of consideration by the beeman who wishes to add to his income in this manner.

"Canadian Beekeeping" is the title of a pamphlet for the Ukrainian beekeeper by N. Karabut, of which the first edition of 1000 copies was recently put out by the author. The object of the booklet is to give the Ukrainian beekeepers an outline of the developments and present state of Canadian beekeeping. It endeavors to cover the most practical points about keeping bees, modern trends in beekeeping, preparation of honey for market and Canadian regulations affecting the beekeeping industry. If you are interested, write to N. Karabut, 210 Davidson Street, Winnipeg, Manitoba, Canada.

♦

We have received word from the Barnet and District Beekeepers' Association, in England, that their association has recently been bereft of both its president and its secretary.

Norris Storer Toms, who passed away April 14, had been secretary of the association for twenty-one years and was well known for his ability as organizer and for his untiring efforts in building up the society. F. C. Tidmarsh, whose death occurred just three weeks previous to that of Mr. Toms, was their president.

♦

In drawing foundation I like to put a body full of foundation between the two brood chambers in the 10-frame system after the bees are occupying the full comb space in both bodies. In this position, the foundation is drawn out in record time, the combs are stronger and tougher, since they will be made in part from wax of the old combs from the brood area. It is all right also to allow a cycle or two of brood to emerge from these combs, even if you want them for extracting. They will stand hot weather and rough treatment better.

John Bruce,
Illinois.

♦

A letter from our old friend, A. Z. Abushady, whom our older subscribers know well through his previous connection with the "Bee World," advises that their Bee Kingdom League, in Egypt, has decided on publishing their magazine, "The Bee Kingdom," in two independent editions, in Arabic for the Arabic-speaking world and in English for the other countries. This is to begin with the May 1938 issue.

Any of our readers interested should write for sample copy of the magazine which will contain forty pages with illustrations and is available at a price of 6 shillings per year. Mr. Abushady, who is the secretary, can be reached at 60, Rue Menasce, Alexandria, Egypt.

My Two Queen System

By I. L. Swain,

Washington.

THE two-queen hive I have been using for the past eight years differs from any other I have ever read about. The system has two objects: the building up of a large force of field bees before the main honeyflow begins, and the requeening of the colony without dequeening. Further than this it is a good swarm preventive. The various manipulations have almost all been picked up from articles I have found from time to time in the bee journals. I have combined them into what I think is a fine combination to use where conditions are similar to ours here in the Yakima Valley, where we have a long spell of very little or no nectar in the flowers between the fruit bloom, generally in early April, and the main honeyflow in July.

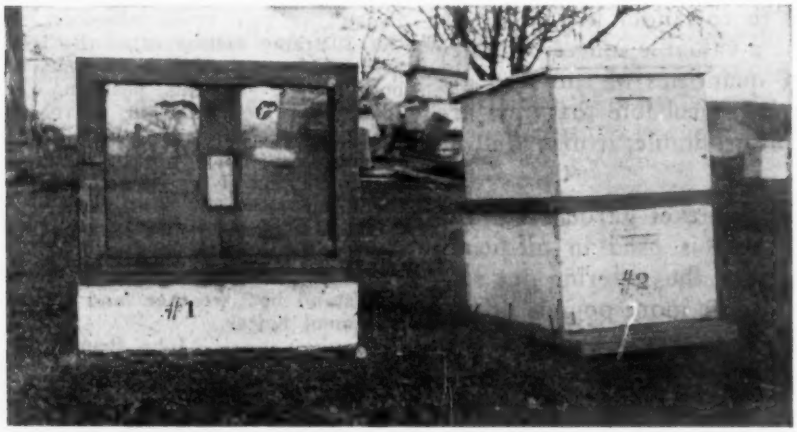
In following this system you will require only one extra piece of equipment for each hive so used—a double screen to be used between two hive bodies. This screen (No. 1) is almost identical to the Sheppard super cleaner which was recommended by Sheppard some years ago. The upper side of the screen faces the camera, and the entrance for the upper story can be seen at the left end of the screen as pictured here. Any one with a power saw can make these screens at a small cost, and making the outside dimensions 16¼" x20" and the rim 1¾" wide as they are in the photo, the screen will fit both eight and ten frame hives, as you can see (No. 2).

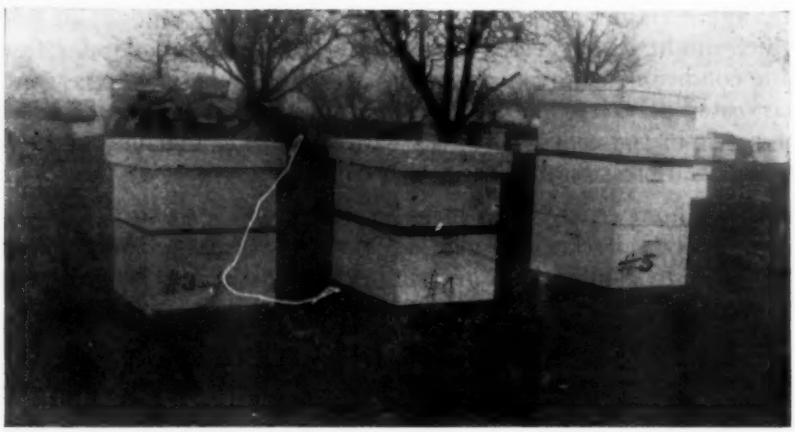
To build this screen you will require two pieces of screen wire each 16"x20" and sixteen pieces of wood (pine preferred), all ⅜" thick and 1¾" wide, except the center piece which is 3" wide. Of these strips you will require four 20" long, four 6¾" long, two 16¼" long, three 12¾" long, two 5¾" long and the center piece which is 16¼" by 3" wide and, of course, ⅜" thick. These will nail together so all corners overlap and will make a strong, serviceable, framed screen, which we have always used for a moving screen in our pollination work, and can be used as a super cleaner, or some may wish to use them for escapes. As you will notice, this screen in the picture is equipped with an escape, and a metal slide that can be operated from outside the hive which opens or closes the escape. I much prefer a solid board for the escape, as the bees do not find the opening in the escape so well where screen is used.

This screen should always be double with ⅜" space between the two screens. I have known of queens being mated above a single screen but in my experience there were a great many more cells that did not hatch, and a great many more virgins that were lost after emerging when using single screens. The bees, being able to reach each other through the single screen, were aware there was a queen below and did not take the trouble to raise one.

Now as to the manipulations, this system is very flexible and can be adopted to almost any conditions. I will describe my methods, step by step, with an average colony which has a two year old queen and ten frames of brood at the time we wish to requeen, which with me is during and just following the fruit bloom.

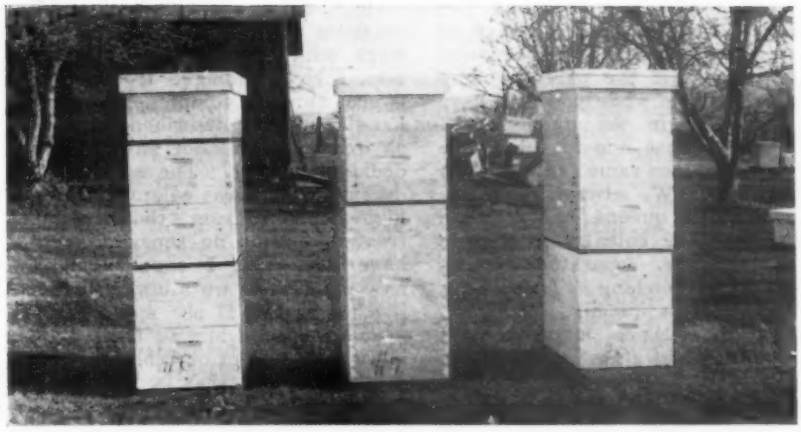
You will understand, of course, that if you rear your own queens,





Above—The screen, at left, and the hive, at right, are referred to in the article as No. 1 and No. 2, respectively.

At right—The hives, from left to right, are referred to in the article as Nos. 3, 4, 5.



The hives, left to right, are referred to as Nos. 6, 7, 8.

you will have to start your cell building and finishing colonies so as to have ripe cells at the right time, or if you buy laying queens you must order them so they will arrive at the proper time. Also, if you run your colonies in single story, you will have to add one story. I do not think much of a colony that has not outgrown a single story brood nest at the close of the fruit bloom.

To start the manipulations I go to the colonies four or more days before I wish to divide them and slip a queen excluder between the two stories of brood (No. 3). Thus I have only one hive body to look through in finding the queen, as absence of eggs in one tells me that she is not there. In fact, it often is not necessary to find her at all as the queenless story may have the right amount of bees and brood to make the division. The queen is left in the lower story and brood and bees sufficient to start a nucleus are left in the upper story, both stories being given enough honey to keep them going. Three frames of mostly sealed brood should be used in the nucleus avoiding as much as possible eggs and very young larvae, as a considerable number of bees left with this division will go back home and the remaining bees may not take care of the young larvae. The heat coming up from the colony below will help the new colony along until more of the sealed brood emerges. Of course, the amount of brood you use in forming this nucleus will vary according to the condition of the colony; if the colony is weak, take only two frames so as not to set it back too much, but if the colony is strong and likely to swarm, you may take as high as six or eight frames which will go a long way toward preventing swarms.

Assuming that we have the division right, we set the excluder aside and place the double screen between the two hive bodies, leaving the entrance in the screen so it serves the upper story and points to the rear of the hive. We now have the condition shown in No. 4 which you will note is a rear view showing the screen in place and a piece of sheet iron slipped in the entrance of the screen to be used for an alighting board for the bees and the virgin when she goes on her mating flight.

If my experience is good for anything, two days is the best time to wait to introduce a ripe cell to this queenless part of the hive. If there is no honeyflow at the time, it is best to feed this queenless part, being careful not to let any syrup drip through to the parent colony as that will likely start robbing. You handle this queenless part in every way the same as if it were an increase set off by itself. You have the advantage of the heat below helping the little nucleus along and the two colonies have the same odor at all times which helps you when you unite them later. If you wish to examine the parent colony, below, lift the upper story, screen and all, and set it on any empty hive body directly behind so the field force can find their entrance.

If the parent colony prospers as it should, the lower story will soon be too small to hold it so we set the top story off and add one story to the parent (No. 5). If the new queen builds up very fast, you may have to add another super of brood combs to her part, always keeping the screen between the two queens.

Now, we will assume that you have a young laying queen in this upper part of the hive and the honeyflow is just starting, the bees, therefore, requiring super room for the surplus honey that is coming in. We treat the hive as in No. 5, by setting off the top brood nest, screen and all, placing a queen excluder over the lower brood nest or parent colony, placing at least two full depth supers on this excluder, and on top of all we place the brood nest containing the new queen. We discard the screen that has been under this and use a queen excluder in its place and we have the combination you see in No. 6, which is a rear view. One thing this picture fails to show is that the upper brood nest and excluder are pushed forward just enough to allow the rear entrance that they are used to.

Now, we have this condition (No. 6): The bees from the two queens have to store honey in the one set of supers. If you think the bees from the upper brood nest will not store in these supers below their queen excluder, take my word for it—they will not hesitate at all. **Do not put one of the supers on top of the brood nest of the new queen.** That would defeat the object of the manipulation which is to get the bees from both brood nests to working peacefully in the one set of supers, the two or more surplus supers are to get distance between the two queens. The bees all have the same scent on account of the screen and they mingle with very little confusion. This manipulation must be made during the honeyflow.

Provided you have had no hard luck, the queens should have a combined brood nest of from twenty to thirty frames of brood. If your honeyflow does not last long you will want to cut down on this brood so as not to raise too many bees to be consumers after the honeyflow is over. So, in about seven days, you take off the upper brood nest with its new queen, take off the surplus supers right down to the brood nest of the parent colony and set the brood nest with the new queen on top of the parent colony **with no excluder between.** The excluder and surplus supers go above the now three-story brood nest (No. 7). The top super is still pushed forward so the bees have a rear entrance, as we do not want to cause any confusion if possible.

These last two manipulations have been done with as little disturbance to the bees as possible, the idea being to get the two queens together by easy stages without losing either queen. I do not hunt out and kill the old queen, but leave the bees to take care of that. I find from 90 per cent to 95 per cent of these colonies are headed by the new queen when I examine them the next spring. Some few will have both queens.

After these queens have been together for a week, I feel safe in tearthe brood nest apart and reducing it to two stories or one if you wish to operate with single story brood nests. At this same time, you may close this rear entrance if you wish, though I generally leave it open until the next trip to the yard so as not to cause too much disturbance at one time. Some have expressed the opinion that there will be some drifting when these rear openings are closed. This will be true if you close one opening and leave the others open, but if

all are closed at the same time, the bees will cluster on the back of the hive for a time, then form a line and march to the lower entrance.

The colony is now in its normal condition (No. 8). All the brood and queen or queens are in the bottom two or one stories above which is all honey and surplus brood, separated from the brood nest by the excluder.

Now you will notice that while we have been requeening this colony, it has at no time been queenless. If you lost the first cell introduced, or if the virgin came up missing, you simply raise a little fresh brood from the parent and start over. You will not have to inspect both parts in exchanging combs unless you wish to, as they are both parts of the same parent colony. If you wish to requeen and strengthen a small colony that has not enough brood to divide, you simple find a strong colony that can spare brood and bees and you set your nucleus above the screen of the small colony with this borrowed brood. Again if the parent colony should supersede while you also have the new queen in the upper brood nest, you can use one of these new queens to requeen same failing queen in the yard. We always have use for some new queens and I keep several of these colonies with their two new queens, separated by excluders, on tap as long as I may have use for an extra queen.

If, as sometimes happens, you utterly fail to get a new queen above the screen and it gets too late to introduce a cell, pull out the screen, place a newspaper in its place and you have just what you started with.

The honey producer seldom has time, or at least takes time, to keep records that will tell just what advantage he derives from various manipulations or what the labor amounts to. During seven years' work with this two-queen hive system, I have managed from eight to twelve hundred colonies. The number handled as here described has varied, as weather and labor have been the deciding factors. The average production from these colonies has been higher than from those not so treated, but as no separate records have been kept, I cannot tell you how much. As we allow a queen to live two years, if she appears to be a good one, we aim to treat a little more than half of our colonies in this way each year, that is, we treat all two-year-old queens, and all one-year-old queens that do not appear to be first class. I believe that the value of the queens raised will pay for the extra manipulations, leaving the extra crop as pure velvet and, believe me, we need the velvet.

—ABJ—

Wax Separators

By E. L. Sechrist,

Tahiti.

Honey Getting

SECTION II

Part XII

THERE is one practicable method of removing these masses of melted wax from capping melter honey, but it must be used before this honey has cooled or entered the main part of the honey from the extractor. Half-liquid particles of wax will become globules and droplets when mixed with cold honey. If, however, the mass of melted wax and slumgum is held together and kept warm in the basket of a properly made and used wax separator until all the finely divided bits have combined into a uniformly smooth liquid, then the wax will separate completely from the honey, and run off freely, to become a solid mass of wax, ready for market. The honey, too, will be clean and free from these troublesome small wax globules and droplets.

But if the mass of wax and honey from the usual capping melter, such as the Petersen type, or the type with a grid of triangular tubes and an outlet for honey and wax at the bottom of the melter, is merely run through the usual type of wax and honey separator, or if the wax is permitted to remain on top of the mass until it solidifies, not only will the honey be injured in quality but it will still be polluted with these tiny masses of wax. If such honey is sold and used in crystallized form, the wax in it will give no particular trouble, although the honey will have a slight "waxy" taste. Moreover, if the honey is already amber in color, a slight darkening caused by the capping melter will not be a serious matter; but if the producer sells honey which is full of these wax masses to a bottler, telling him incorrectly, but perhaps in all good faith, that the honey is high grade and fit for bottling, he is preparing the way for trouble because such honey will be cloudy when liquid and cannot be made clear. These wax globules and droplets are so small that only an examination under a microscope will reveal the cause of the trouble.

Capping melters have the advantage of cleaning up all the work at the end of the day, and if a good melter and an improved wax separator are properly used, the wax from each day's run will be left in a finished cake of merchantable quality. There will then be, at the end of the season, no sticky and messy job of melting up the drained cappings which have accumulated for several months.

Good Capping Melters and Wax Separators.

Capping melters and wax separators which do not lower the quality of honey run through them and which separate the wax almost perfectly and leave it ready for market without remelting have been made by a number of experimenters in beekeeping apparatus, men who, like the writer, have encountered the difficulties involved in using a capping melter and have tried to solve the problem. But such apparatus is not handled by the large manufacturers of beekeeping supplies.

The Petersen type of melter may be made satisfactory by the addition of a grid of steam pipes above that part of the heating surface on which the cappings fall; but without such a grid it should not be used for melting cappings which have not been

previously drained. This grid catches the cappings and permits the honey, as it becomes warm, to drain through to the heated pan and to run off quickly, holding the cappings on top of the grid until the wax is melted. But always this grid must be kept covered with cappings or the honey will be scorched. If uncapping is discontinued for a few minutes, the steam must be turned off.

The type of capping melter with triangular pipes, as usually sold, like the Petersen, is not satisfactory for melting undrained cappings, but must have a provision for removing the honey from the heated surface very quickly while retaining the wax until it is well melted by the hot grid. This melter also has the fault of keeping the honey hot too long because the tank as well as the grid is heated.

The Brand Capping Melter.

This new capping melter employs a grid of triangular pipes as the heating elemcnt, and it has all the good points that I have enumerated as being necessary for a satisfactory capping melter. It heats the honey only moderately; separates it clean from wax and slumgum; and runs the wax into a separate container.

The Brand capping melter does not burn or otherwise damage the honey as the heating element is always covered with the melting mass and the wax is soon separated from the honey, which runs from one outlet while the wax runs from another.

It has the advantage over other melters of this type in that the heating element of triangular tubes is removable for cleaning, so that both tank and tubes can be cleaned readily, while the hot tubes can be raised or lowered in the tank to suit the speed of uncapping. In addition, it uses surprisingly little steam. These results are accomplished very simply by means of three improvements; (1) The tank itself is not heated unless very cold weather makes a little additional heating of the honey necessary in order to cause it to flow rapidly; (2) because only the grid is heated, the honey runs down quickly into the unheated tank, which since the outlets for the honey and wax are near the top of it, remains full of slighty warmed honey with the melting wax floating on top and running off without becoming mixed with the mass of honey in the tank; (3) the heating grid may be raised or lowered or its slope changed to suit the speed of uncapping and the density or temperature of the honey. Little steam is required because the honey is only slightly heated.

I have made what seems to me to be an improvement in this melter by using with it a slumgum basket as in my favorite wax separator which is a modified Severin. This basket is made of ⅛ inch mesh hardware cloth, fits the inside of the tank, and is about six inches deep. It hangs in the tank, beneath and enclosing the heating element. When skimming off slumgum becomes necessary, or at the end of the day when the tank is drained through the bottom outlet provided for that purpose, the heating element may be raised and the basket lifted out, carrying with it most of the slumgum which would otherwise remain in the tank. When cappings are cut from old combs, there is considerable slumgum but when only new combs are being melted, there is comparatively little. The Brand capping melter is, I think, the best on the market.

The Severin Melter.

The Severin capping melter, which like the Brand, is a patented article, embodies the same principles and does as good work as the Brand, but I think it is less simple and not so easily handled. It uses, as the heating element, a flat plate pierced with small holes into which are soldered tubes passing down through the hot chamber and soldered into similar holes in its bottom plate. As the cappings fall on the hot plate, the honey runs down through the holes as soon as it becomes warm, followed by the wax as soon as it is melted. Both fall into the wax separator. The honey runs immediately out of the neighborhood of all heat while wax runs into a pan within the lower part of the melter and remains hot as long as the melter is being used.

Liquid Honey without the Use of An Extractor.

Mention should be made here of the use of a melter in a type of honey producing outfit in which new combs are melted and liquid honey produced without the use of a honey extractor. This is part of the system of honey production worked out by the Rauchfuss family in Colorado and Wyoming, and it has some points of advantage over using an extractor, in that (1) there are no extracting combs to be returned to the hives with a possibility of spreading American foulbrood, and in that (2) none of the work of preparing honey for markets need be done in the busy summer season but may be carried on in the fall and winter after the honey crop has been produced in new combs and stored in the honey house.

The Rauchfuss melter depends for its successful operation partly on the rapidity with which it works. It will melt new combs as fast as two men can cut them out of the frames. It has a grid of steam pipes which may be lifted up for cleaning; the honey runs rapidly off the heated pipes which are always coverd with honey in the comb, and efficient means are provided for separating the wax and honey. The honey produced in this way carries no added "waxy" taste; is not changed perceptibly in color or flavor, as far as I am able to determine; contains no wax globules or masses; and is in every way the equivalent of honey taken with the honey extractor.

Large Capping Melters.

The large capping melter which will melt the cappings from 2,000 supers in ten hours, must also be mentioned. It also has triangular tubes and makes a short job of taking care of cappings which have accumulated during a busy extracting season.

These various types of comb and capping melters and wax separators, as well as capping presses and wax presses, will be described more fully in the later section devoted to **Plans and Equipment.**

—ABJ—

Institute Notes

Recipe Contest

Plans are being whipped into shape rapidly for the 1938 Honey Recipe Contest which will be held in connection with the National Beekeepers' Conference at New Orleans on December 5-7.

The cookery contest was originated and sponsored with the idea and hope of interesting more people in the use of honey. The contests have succeeded. This year we are adopting a new plan which we feel will appeal to even more people and increase the entries.

The July bee journals will bring you more details. The list of prizes, which we hope will be more attractive than ever before, should be completed by that time. The rules will be ready early so that there will again be ample time for distribution.

The contest is a good way to get potential honey users to be regular honey users. It is not too early to begin planning ways and means you will employ to make the contest known in your locality. The Institute will use every available means to publicize the contest—your help will make it that much more effective and inclusive. The more people you interest, the more entries there will be and the more honey you will sell.

Honey in the "Primitive Physic" of John Wesley

By H. A. Schuette,

Department of Chemistry,
University of Wisconsin.

HISTORICALLY medicine and the Church have been intimately related. Little wonder, then, that one of the great ecclesiasts of the eighteenth century, John Wesley, the founder of Methodism, "in walking with Christ" should have interpreted the obligations of his profession by acting not only as spiritual adviser and confessor to his devout followers but as healer of the sick as well. He was a voluminous writer—apparently an eager one, too — and has to his credit at least one "best-seller" of his times. The book in question is entitled "Primitive Physic: or, An easy and natural method of Curing most Diseases." It is nothing more than a collection of over eight hundred "receipts" for treating or preventing approximately three hundred human ills and afflictions, a list that begins alphabetically with abortions, agues and apoplexies and ends with warts, worms and wounds.

It carried its appeal primarily to the great masses of the ignorant poor, many of whom he found helpless in time of sickness. The first edition of this work appeared in 1747. Subsequent ones did not stop with his demise in 1791—they had reached twenty just ten years before death stilled a physical activity for which it is difficult to find a parallel in history—for willing hands continued to publish this popular work which finally reached the thirty-sixth edition in 1840.

Wesley had no formal medical training upon which to draw for the material of his "Primitive Physic." Instead he acquired the necessary fund of knowledge by observation, by eager study of medical and anatomical works, and as the result of a habit of recording bits of information on drugs, sundry concoctions and the simple, rude medical lore which he picked up, invariably from the older members of the communities which he visited, in the course of his very active career as itinerant preacher.

While a student at Oxford, for example, a study of Cheyne's "Health and Long Life' introduced him to vegetarianism. Later, when in America, where he had been sent by the Society for the Propagation of the Gospel to Georgia, to take spiritual charge of General Ogelthorpe's colony, he studied Drake's "Anatomy" that he might more effectively render assistance to the colonists in emergencies, if need be. Here also he became a close student of the crude self-medication practiced by the American Indian. All of which is, probably, in part contributive to the twenty-seven year study of medicine which he claimed for himself when he opened his free dispensary in 1747, an event which was co-incident with the first appearance of this book.

The nature of his approach to the healing art may be surmised from the sermon which serves as the preface to the book which begins, "When a man came first out of the hands of the great Creator, cloathed in body as well as in soul, with immortality and incorruption, there was no place for physic, or the art of healing. As he knew not sin, so he knew no pain, no sickness, weakness, or bodily disorder. . . . . But since man rebelled against the Sovereign of heaven and earth, how entirely is the scene changed? The incorruptible frame hath put on corruption, the immortal hath put on mortality. The seeds of wickedness and pain, of sickness and death, are now lodged in our inmost substance; whence a thousand disorders continually spring, even without the aid of external violence." He then admonishes his readers that the heavens, the earth, and all things contained therein conspire to punish those who rebel against their Creator and then voices the prejudices prevalent in his day against open air treatment by stating: "The sun and moon shed unwholesome influences from above; the earth exhales poisonous damps from beneath; . . . . the air itself that surrounds us on every side, is replete with the shafts of death."

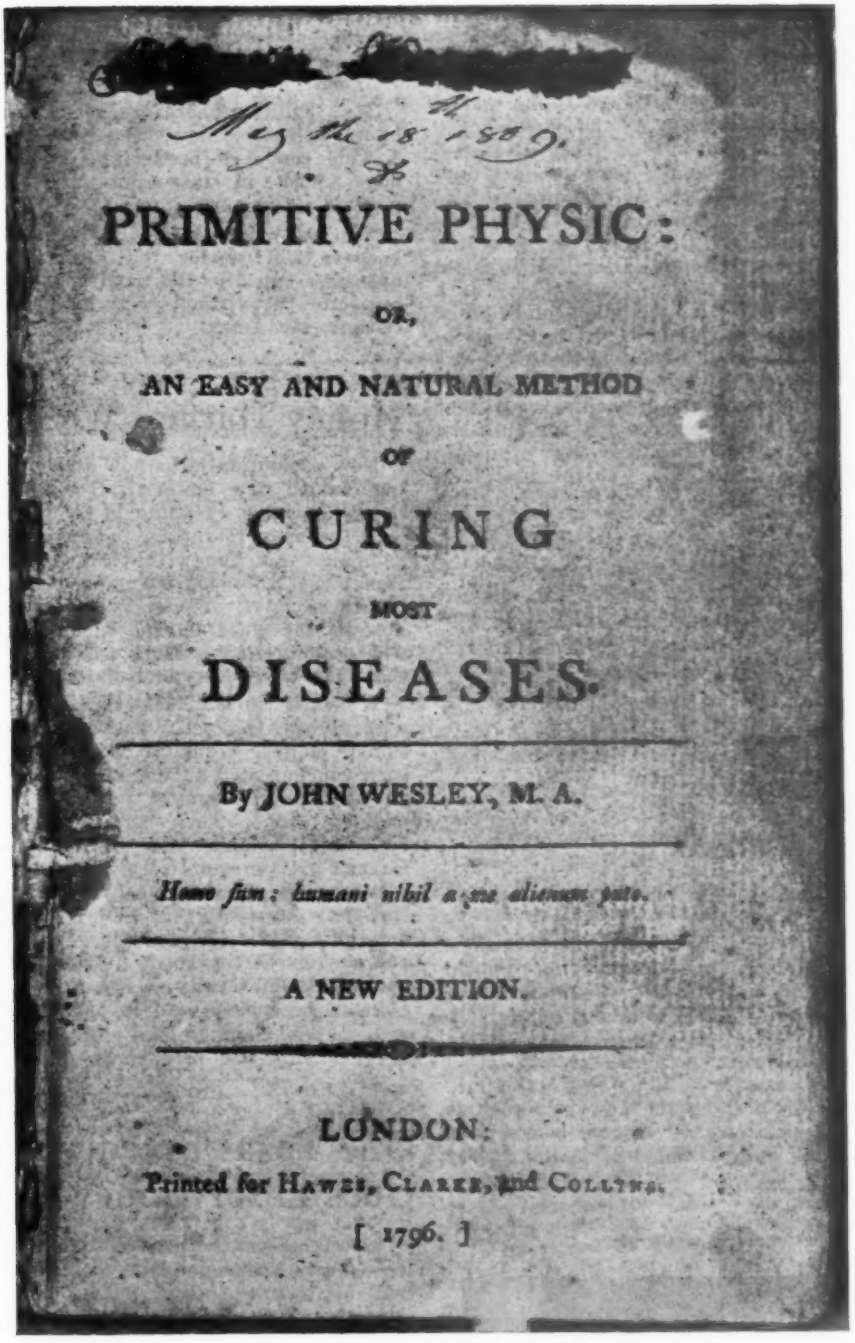
The preface is concluded with an address to "those who desire through the blessing of God, to retain the health they recovered." It takes the form of excerpts from the writings of Dr. Cheyne on rules of right eating, the advantages of exercise and cold baths, regular habits of elimination, and so forth.

Revisions and alterations, made in pursuance of his original design "to set down cheap, safe, and easy medicines; easy to be known, easy to be procured, and easy to be applied to plain unlettered men," were made in the numerous editions which soon followed. Omitted were, he states (1855) "(together with Antimony) the four **Herculean** medicines, Opium, the Bark, Steel, and most of the preparations of Quicksilver." For these "justly termed edged tools" had been known to produce fatal effects in the hands of no ordinary physicians.

Instead of these he recommended "to men of plain, unbiased reason, such remedies as air, water, milk, whey, honey, treacle, salt, vinegar, and common English herbs, with a few foreign medicines, almost equally cheap, safe and common."

Since honey had been held in high esteem for its supposed medical virtues from the days of Hippocrates to his own, and even beyond them, and since no author had ever failed to mention it because of its alleged healing properties, it is obvious why Wesley, too, should have turned to this natural product. It is mentioned in some thirty indications, sometimes because of itself, at other times apparently because of flavor or sweetness, often as a vehicle for administering a "chymical" or drug, and again for apparently no reason whatever, except that it suggested a hope that the cure, because of it, might be effective.

Mildly militant, yet almost apologetically, this man of God who described himself as "a mean hand (that) has made here some little attempt towards a plain and easy way of curing most diseases," offers to his followers his "collection of receipts" which were based upon "experience, common sense, and the com-



Title page of the "Primitive Physic"

mon interest of mankind." Although he had the see-the-doctor-first idea, when he states, in closing, "In uncommon or complicated diseases, where life is more immediately in danger, I again advise every man without delay to apply to a physician that fears God," yet he leaves before his readers a subtle suggestion to purchase a copy in these words: "And supposing they can be cured this easy way, who would desire to use any other? Who would not wish to have a physician in his house, and one that attends without fee or reward? To be able (unless in some few complicated cases) to prescribe to his family as well as himself?"

Honey finds application in the following "cures." Baldness might be cured by rather heroic treatment, if one did not object to its pungent ingredient, by rubbing the head morning and evening, first with onions, till the barren spot was red, and then, with honey. Boils would succumb to a "plaister" of honey and wheat flour. To cure a cancer in the breast, the sufferer was offered a choice of seven remedies, one of which was to keep the afflicted part continually moist with honey. If the seat of infection was "any other part," a "plaister" of equal parts of "roche-alum," vinegar and honey, to which wheat flour had been added was advised. A honey-sweetened gargle made of the leaves of "succory, plantane and rue" was recommended as being infallible, but a mixture of honey and vinegar, wherein "roche-alum" had been boiled, though mentioned, apparently had not the author's enthusiastic support.

If drinking a pint of cold water while lying down in bed brought no relief, the patient suffering from a cold had his choice of trying several other remedies, among them this one: "to one spoonful of oatmeal, and one spoonful of honey, add a piece of butter, the bigness of a nutmeg; pour on gradually near a pint of boiling water; drink this lying down."

Consumptives were offered a ray of hope, for among the fifteen remedies offered, five had been "tried" and several carried testimonials as to their effectiveness. Among them is found this one: "Or, take morning and evening, a tea-spoonful of white rosin powdered and mixed with honey . . . This cured one in less than a month, who was very near death."

To cure a cough, a "tried" remedy consisted of taking internally the juice obtained by roasting a lemon which had been filled with honey. Some of his remedies for costiveness seem rational even to this day, such as gruel and currants for breakfast, "teas" brewed from leaves known to possess laxative effects, or a diet of whole wheat bread, but not so a concoction consisting of cream of tartar of "the bigness of a large nutmeg" and honey.

Garlic and honey! What a bizarre combination, yet it was a "tested" specific for deafness accompanied by a headache and a buzzing in the head. To get relief, the patient was advised to peel a clove of garlic which, after having been dipped in honey, was to be put into the ear at night with a little black wool. Films in the eyes were removable, if a cautious daily application of lunar caustic did not appeal, by dropping into them a mixture which consisted of the juice of the ground-ivy, honey and a little salt. A specific for fever contains **nitre**, which is still administered today, in water gruel sweetened with honey. An early use for spinach was a liberal diet thereof when "the gravel" was indicated, a remedy which took precedence over drinking large quantities of warm water sweetened with honey.

Remedy number seven under "hoarseness" consisted of supping frequently of a filtered infusion of wheat bran which had been made palatable by the addition of this sweet. A painful discharge of the urine ("stranguary") could be relieved by drinking liberally of a decoction of turnips, sweetened as above, it was stated, but warm lemonade is listed as the remedy which had

been tried. Was it necessary to stop a "mortification"? A poultice of flour, honey, and water, to which a little yeast had been added, should be tried —but without benefit of recommendation. Flour of brimstone mixed with honey in equal quantities, apparently the precursor of the over-estimated sulfur - molasses combination, taken frequently throughout the day succeeded oftener in the cure (!) of rheumatism, so Wesley averred, than any remedy that he had found. Sweet oil, honey and vinegar, beaten well together with a spoon, if swallowed every minute would ease a "sting in the gullet." An alum-honey mixture appears again under the head of "thrush," or little white ulcers in the mouth. If this mixture be well rubbed into the child's mouth, five or six times a day, this condition would be cured in a few days, so Wesley observed. Less enthusiastic was he over the curative properties of a saffron-containing mixture of the juice of celandine admixed with honey to the consistency of cream. It was directed that this concoction be applied to the afflicted parts with a feather and that rhubarb be taken internally.

The book is not free of those so-called remedies which are in reality only charms and to several of them either honey or beeswax has been made to lend itself. For what virtue can lie in the following for "a bloody flux": "—take a large **apple,** and at the top pick out all the core, and fill up the place with a piece of **honeycomb;** (the honey being strained out) roast the apple in the embers, and eat it, and this will stop the flux immediately." Or, again, a desiccated mixture of honey and quicklime taken internally several times a day as a specific for a tubercular condition of the lymph glands in the neck described here by its old name of King's Evil and latterly known as scrofula?

Homeopathic remedies are not wanting among the list for both the sting of the bee and that of nettle are provided for. For the first it is honey, for the second the juice of the offending plant.

Enough has already been cited with respect to the use of honey in Wesley's "Primitive Physic" to suggest the thought that this little book contains indeed, a mixture of strange antidotes, cures and remedies. And perhaps it is so, but let us remember, if we are disposed to smile, that they were collected and in use in the days of "bodily humours" and "miasmas," and let it go at that.

—ABJ—

Killion Succeeds Duax

We have received word of the resignation of C. L. Duax as Chief Apiary Inspector for Illinois and the appointment of Carl E. Killion to succeed him. Mr. Killion hails from Paris, Illinois.

Our Illinois readers will undoubtedly be somewhat surprised to learn of Mr. Duax's resignation, as he has made many friends throughout the state and has become a popular figure at state and county meetings. Undoubtedly, without his official duties, he will become more active in honey production and honey selling. Mr. Duax is to be complimented for his work in the Illinois inspection service.

Carl Killion, the new inspector, is not unknown to Illinois beekeepers. He is one of the best comb honey producers in the state and has been a speaker at various state and county meetings, both in Illinois and Indiana.

Mr. Killion, therefore, is well equipped for his new post, as he has a wide range of beekeeping knowledge, both in inspection and in general beekeeping.

We are sure that Illinois beekeepers will render the same cooperative spirit to the new incoming inspector, Mr. Killion, as to his predecessor, Mr. Duax.

Left, C. L. Duax, retiring Chief Apiary Inspector. Right, Carl E. Killion, who takes over the duties of the office.

—ABJ—

Honey Harvest Week

New promotion ideas, new advertising means, new material, free publicity helps are all going in to make this the most extensive advertising campaign for honey that American Honey Institute has ever sponsored. Put these dates, October 24-29, down now as the week during which you will do more advertising for honey than you have ever done before.

We have had sufficient experience with Honey Harvest Week and National Honey Week to know that such concentrated advertising can do an astonishing amount of good in making homemakers and grocers honey conscious. We have also learned by comments received at the Institute office how seriously the 1938 National Honey Week was missed, not only by interested beekeepers and packers, but by many outside the beekeeping fraternity.

Read the Institute ad on page 292 and watch coming issue for new developments and new ideas.

—ABJ—

One Texas Breeder Goes in for Honey

A letter recently received from a large Texas beekeeper is to the effect that he is anticipating during this season and the coming one shifting a considerable portion of his equipment into honey production so as to have "anchor to windward" should there be any difficulty in package bee and queen prices.

Here is an intimation that there may be some cutting in the queen and package prices.

It is perhaps possible that some breeders have erred and gone too far in divorcing themselves absolutely from honey production, particularly if there is a retail market which could readily be supplied at satisfactory prices. We need, more than anything else in this honey business today, satisfactory markets and a continuously supplied market which will maintain our customers from one season to the next.

Using Noise to Settle The Absconding Swarm

By R. Hamilton,

Saskatchewan.

PROBABLY one of the most interesting things in beekeeping is the issuance of a swarm. Few beekeepers will forget its thrill and the joy of its being hived successfully. Under present day practice, our management endeavors to prevent swarms. Nevertheless we still have swarms and will probably continue to have them for a long time to come.

Sometimes a swarm gets away which is disastrous to the colony as far as a honey crop is concerned. The ancients on such an occasion used to beat a pan or ring a bell to bring down the runaway. Modern authorities ridicule the idea, assuming that the majority of swarms will settle of its own accord a short distance from the hive.

In over thirty years of beekeeping, I have run after swarms which have left the bee yard where they were clustered unnoticed for some time. After about a mile of running the swarm vanished in the horizon.

I often wondered if there was anything in the tin pan idea and I resolved to try it. Usually the excitement of seeing the swarm leaving and with nothing at hand with which to make a noise, the swarm was lost. My first chance to try it was four years ago when just before noon, a swarm issued with a virgin queen. I did not know the hive from which it came so I placed it in a new hive for the time being until lunch was over. About an hour later the swarm was in the air and starting off the old familiar way headed for a large open field.

I thought of the tin pan and hurriedly grasped a sheet of tin steel and an iron peg. After a short run I caught up with the swarm, now traveling in a nice steady pace. When directly under it I began to beat on the steel and I was astonished at the results. Immediately the swarm seemed to become disorganized and completely lost its sense of direction, the bees starting to mill around as they do when they first leave the hive. After three or four minutes the swarm moved slowly towards the nearest bush at right angles to their original course, where I caught them when they settled.

In going back to the yard I discovered they were the swarm with the virgin queen I had hived before lunch. Since then I have brought down other swarms in the same way, one of which I deliberately let go as a test.

It is not difficult to figure out how it works for if you look carefully at a swarm when it is traveling you will see a few bees in the leading place, flying back and forth much faster than the heavily loaded bees of the swarm. These bees I believe are the scout leaders who are responsible for the guidance of the swarm and for finding the new home.

The high pitched hum of their rapid flight is what the swarm follows. These leaders have no honey in their sacs so have a different flight sound. When this sound cannot be clearly distinguished, the swarm is like a ship without a rudder.

A five gallon oil can was used for sound in the last two cases. I believe a hand bell would be better as it would be easier to handle and probably more nearly the correct tone though possibly the tone is not the chief factor. Perhaps the noise simply drowns the sound of the scout leaders.

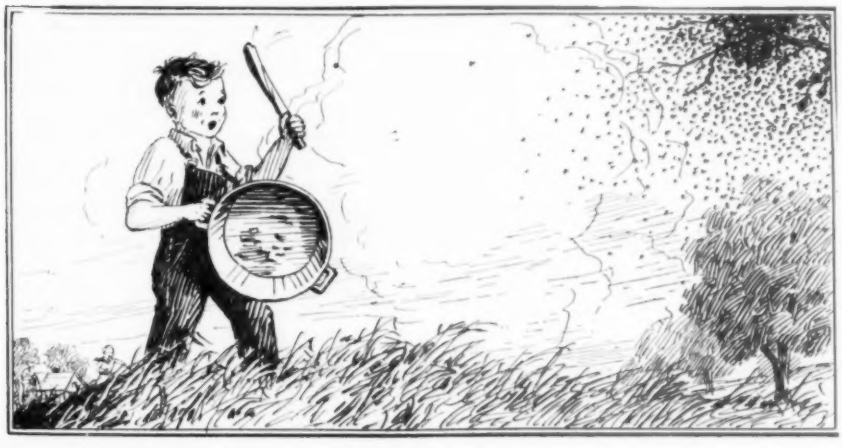
I think there is little doubt but that the only means of guidance or communication is by sounds created by wing vibration. When the beekeeper works about the hive he notices how the high angry note of a cross bee excites others. When the angry bee settles on the clothing it buzzes its wings, a signal to other bees usually very effective.

The first bees of a swarm to enter a new hive immediately fan the wings as a signal to the rest of the swarm and its effect is very noticeable. Bees, when robbing, have another note. Probably that is why it takes such a short time for the first bee getting a load until the yard is in an uproar.

These are only a few instances well known to beekeepers. I hope others who have been skeptical will try out the tin pan the next time they have a runaway swarm. It is not difficult to catch up with a swarm as their speed is only four or five miles per hour unless they are traveling over woods or are too high.

The use of sound for the settling of a swarm is one of the oldest practices in beekeeping and no doubt was used properly in the early days. **Just when the practice was abused and used on all swarms other than the absconding ones is hard to find out.** We do know that its abuse was responsible for the practice falling into disrepute in later days.

[The fanning with the wings at the entrance of the new home seems to be for the purpose of distributing odor from the dorsal scent gland. This odor attracts the other bees into the hive in the regular manner. —Editor.]



Nectar Secretion

By Antonios G. Petropoulos,

Greece.

I OFTEN hear of beekeepers being at a loss to explain the freaks in nectar secretion. Of course, nectar secretion is a complex phenomenon and we should be careful not to have too many set beliefs about it. I have a few hints and suggestions.

Our inability to explain nectar secretion is no excuse for us to conclude that it is a haphazard natural occurrence; an exception to the exact law of cause and effect, the unchangeable law of nature.

I think, however, that I understand a little about this important factor in successful beekeeping. In this, the climate here in Greece has helped me much. I doubt if I would know anything concerning nectar secretion under different circumstances. My observations may not be true outside of my own country.

I live in southern Greece at a latitude of 36° and an altitude of 1800 feet above sea level. We are subject to many vagaries in weather; perhaps not like your continental country because the Mediterranean tempers our climate. The season of 1935 for instance, was affected by drought. It did not rain for seven months. Our atmosphere is clear, the sky is a deep blue most sunny days and about 80 per cent of our rainfall is borne by a southwestern wind that blows from the Mediterranean Sea and originates from the northern coast of Africa. It is a warm current, which after March and before October, although filled with water vapors, produces no condensation and no rain. An eastern dry wind is also a prevalent one.

These winds have much to do with nectar secretion. The speed of them in winter may reach the proportions of a whirlwind. In late spring or summer, they may not even be felt as breezes. This is particularly true of the southwestern wind which occasionally blows only in the higher atmosphere evidenced by warm weather and a vapor laden atmosphere below. The eastern wind sometimes blowing for weeks becomes a real plague to agriculture.

Nectar secretion, according to my observations, is determined, more or less, in advance of the blooming time of each plant As a rule, plants blooming in early spring bear flowers on twigs produced the previous season and with them an abundant vegetation promises an abundance of blossoms the season the plant blooms.

Nitrogen is absorbed by the roots of the plants as ammonia salts, which, in the plant's tissue, is changed to amino acids and other nitrogenous compounds used directly by the leaves, or stored as surplus for future use.

The change of the ammonia salts into assimilable compounds begins when the leaves are fully developed and the twig growth has stopped, and it continues as long as the leaves preserve their green color. So most plants during blooming are nourished by the surplus stored away the previous season. This storing of surplus takes place between June and September. The leguminous plants store it in their roots. The new vegetation the following year is accomplished by the expenditure of the stored material.

But plants do not live only on nitric compounds. They need hydrocarbons as well which are manufactured by leaves from water absorbed by the roots and from carbon dioxide taken from the air through the influence of chlorophyl and sunshine. As soon as the hydrocarbons are ready, they are used directly by the plant or are stored, like the nitric compounds, for subsequent use. The absence of water during the manufacturing period means little nitric compounds and few hydrocarbons stored away. It is these hydrocarbons that the plants secrete as nectar at the blooming time.

So, a season with few rains means few twigs, few blossoms and little nectar the following season because the reservoirs are limited. On the other hand a wet season must be followed by a season with abundant blooming and nectar secretion.

Plants blooming in late spring and summer depend upon the weather conditions during the preceding honeyflow months as well as the weather of the previous year. Plants blooming in fall are influenced less by the weather of the previous year, and that, mainly, in their twig growth early in the spring.

Plants blooming in spring will not grow enough twigs for the succeeding years bloom because almost all the energy of the plant is used in taking care of the millions of flowers and the setting of fruits. If, however, heavy rains come in the spring, they will grow more twigs. These trees bloom heavily only every third year. If the pasture acreage is great and the plants are divided in their blooming years, we may have good honeyflows every year. I have seen this with heather and sourwood which normally bloom only every other year, but the years vary so the honeyflows overlap each other.

Plants, however, blooming in summer and fall, bloom well every year because they do not bloom and grow new buds and branches simultaneously. Their blooming and nectar secretion is influenced by weather conditions the same year, especially in the case of fall honeyflows. A wet spring and summer must bring heavy honeyflows in fall. I know from experience that this is true. There is a great fall honeyflow here from heathers and arbute trees which last for two months. In 1935 we had a dry season and the fall flow was the poorest I remember, although we had plenty of early fall rains and the blooming shrubs were from 3 to 15 feet tall. They bloomed well, but secreted little nectar.

Based on these conclusions, I have been able to forecast with great proximity the success of future honeyflows. However, the suggestions and conclusions I have given are not enough to explain all the vagaries of nectar secretion. Meteorological conditions during the blooming period have much to do with nectar secretion. The amount of subsoil moisture or the surface moisture has a relation too. Most plants have deep roots to avail themselves of needed moisture. The moisture moves upward in the soil from great depths during the summer. Abundant rainfall in winter insures moisture for the coming summer.

The soil may be in three different conditions during the honeyflow. It may have (1) a lack of humidity, (2) normal humidity and (3) excess humidity. Let us consider each of these in combination with probable meteorological conditions.

1. Lack of Humidity.

No matter how great the stores of hydrocarbons may be in the plant's tissues, the flowers will secrete little nectar because great quantities of water are needed to dissolve the sugars in order to produce it. A dry atmosphere aggravates the condition. A vapor-laden air bringing cool nights with dew and warm days will relieve it sufficiently to insure a fair honeyflow if the hydrocarbon deposits are enough. Therefore, a humid atmosphere with general lack of humidity is highly essential for a good nectar secretion. In my locality this condition is brought about when the southwestern wind is blowing. It sometimes blows far up in the atmosphere while the lower air strata are absolutely calm. Its existence is indicated only by the whitened appearance of the sky. Such currents probably might not be detected in a sky different from that of Greece. This wind usually increases the temperature during the day.

We have a flow from fir tree honeydew, water white in color, thick like jelly, also very sweet, which is booming only when the southwestern wind is blowing. I have followed this event with accuracy year after year. I have seen colonies store as much in one day as in the whole previous week. This honeyflow comes in June. The days may be calm, bright and warm, yet with little honeydew coming in. I have seen the atmosphere change about noon, and in the afternoon the bees rush out of the hives as if swarming.

I explain it as follows: The honeydew is a product of aphids and is extruded from the abdomens of them in a comparatively condensed state. In warm and dry air it is quickly condensed through evaporation to a very thick jelly. The aphids make the secretion from juices which they sip from the tender twigs. In a dry atmosphere, the evaporation is fast and so they cannot sip enough juice. This changes when a vapor-laden air sets in. The juices, then, can be more abundantly secreted, the excretions are more diluted and the evaporation is slow. The juices sipped by the aphids are mostly solutions of hydrocarbons (sugars).

In the same way a dry air will thicken the nectar of the flowers and if the soil is lacking in humidity, nectar secretion will be more or less curtailed. The bees cannot gather the nectar readily nor find it in sufficient quantities. Even wet air in cases of excessive soil dryness will not produce results.

2. Normal Humidity.

In such a case it is natural to suppose that the nectar secretion will go on regularly even if the weather be somewhat dry. The soil has enough moisture to replenish the amount vaporized. The nectar is normally diluted sugars and not concentrated. Abundant deposits of hydrocarbons will insure in this normally humid soil condition a good honeyflow. If, at the same time, a favorable meteorological condition prevails, the honeyflow exceeds expectations. The supers may be piled up to diminutive skyscrapers.

I have always looked, during our summer and fall honeyflows when the subsoil moisture is not as great as in the spring, for the southwestern air current and I have found it more than doubling the amount of incoming nectar. Especially in the fall honeyflows, it has done wonders with my bees. Sometimes when this current exists, the sky is overcast, but it makes no difference, especially if the lower air is calm. Of course, much depends, too, on the amount of the hydrocarbon reservoirs in the plants themselves.

3. Excessive Humidity.

In this case the potential quantity of nectar the plant secretes is too diluted. If the atmosphere is also wet, the condition will be aggravated. This sometimes happens when late spring and early summers are rainy. During these seasons the bees seldom store much honey. The best weather under these conditions is dry, warm, calm days. The bees will not begin working before 10:00 o'clock in the morning—so different from their habits when the soil is short of moisture. Then they work from early morning. The bees, of course, under conditions of excessive humidity wait until the watery nectar is condensed somewhat by evaporation before they begin work.

There is another reason why bees sometimes begin work late in the morning. The plants sometimes have not deposited in their tissues enough hydro-carbons to use during the blooming period for nectar secretion, but if the soil is wet, they will manufacture the hydrocarbons right during the blooming period and use them at once for nectar secretion. But for the manufacture of hydrocarbons, the plants employ water from the soil, carbon dioxide from the air, chlorophyl in the leaves, and sunshine. This means that the manufacture of hydrocarbons and consequent nectar secretion cannot take place until after sunrise when the sunshine needed in the process is available. When the plants have hydrocarbons, reserved from previous periods, this immediate manufacture is not necessary.

So, it is apparent that the best weather with excessively wet soil should be dry and warm. Suppose the bees gather ten pounds of nectar a day. If the nectar is too watery, it may result in only two or three pounds ripened into honey. The other seven will have been evaporated. But the evaporation of water needs much energy which the bees can only produce by consumption of honey itself. A kilogram of water needs 100 great calories for evaporation. A kilogram of honey produces about 4200 great calories. But all the energy is not used in the evaporation of water. No machine renders the energy given it 100 per cent. Indeed, they seldom return over 30 per cent. Living machines may return 50 per cent. Much heat is produced in the hive and lost. So the return of one kilogram of honey is not above 30 per cent returned. That is, a kilogram of honey vaporizes less than 3 kilograms of water. Much of this energy is used for other purposes too, brood rearing, comb building, etc., but the fact remains that watery nectar necessitates the consumption of more honey than the actual amount condensed out.

All this means that when the soil is too wet during a honeyflow, bees will not store much honey unless meteorological conditions are extremely favorable, or the reason before was such that the plant insured great reservoirs in hydrocarbons so that the nectar secreted in spite of the excessive humidity is still concentrated sufficiently. If the hydrocarbon deposits from the previous season be little, the bees may not visit all the flowers.

During a season of normal humidity, the nectar may be very thin or even lacking because of the absence of hydrocarbon deposits, and, in a dry soil, the nectar may be of the right concentration because of small hydrocarbon deposits.

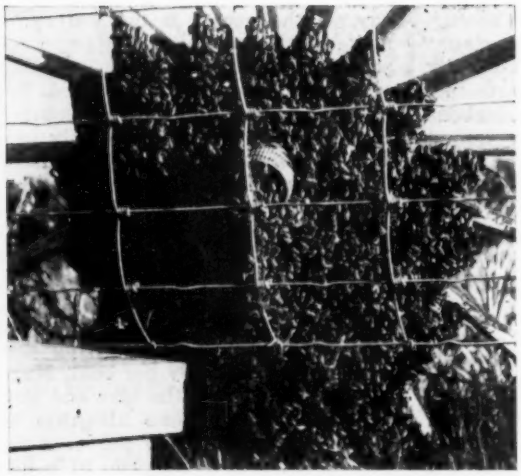
If my conclusions are right, we see that no certain rule governs nectar secretion at all times, but the combination of many factors over a period of about a year are responsible. Thus, a wet season may give little surplus one year and a dry one may give much. The reverse may also be true.

—ABJ—

Tornado Strikes Central West

Hamilton just barely missed being in the path of the tornado which went through on March 30.

We have had a few reports of damage to bees. The Rocke Brothers in central Illinois had one apiary in the path of the tornado and considerable loss of bees. Undoubtedly others in the path of the storm have had similar misfortunes although it is our experience that bees survive about as well as anything in the path of such a storm.



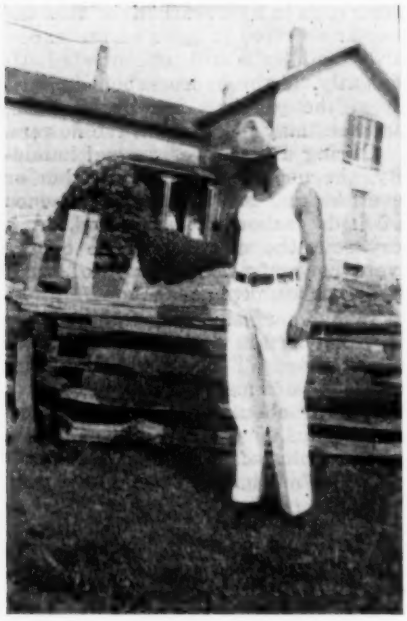
Swarms As They Often Occur

This is a picture of a swarm on a wheel taken by G. M. Pauli, of Pueblo, Colorado. It is an unusually good picture. Mr. Pauli has sent us a number of pictures. The cover picture, this issue, was also taken by him.

ON these two pages interesting pictures show how swarms often form in strange places and arouse much interest on the part of many people. Swarms, however, to the genuine honey producer are not welcome. As Dr. Miller used to say: "To hear of a swarm is like hearing of a cow in the garden." Then, too, swarms are disastrous from the viewpoint of honey production because unless the swarm is captured and properly cared for, the crop is lost.

It is often said that there are three serious problems of beekeeping—excessive swarming, disease and winter loss. I have argued myself at times with those working with me as to which is the worst—excessive swarming or disease. Swarming once out of hands is hard to control. It is much more easy to prevent it than it is to stop it.

On the opposite page a brief summary of swarm control measures are given. This is the result of our experience over many years. It must be remembered, however, that in our apiaries we use the large, old style and Modified Dadant hives, and have long since given up the smaller hives for extracted honey production. The comb honey man must adopt more rigid and exacting methods than those given here.



Boxing Glove

A fair title for this picture which was taken at Howard Easling's at Corning, New York. He says: "I have been looking at the pictures in the Journal with interest. This one is of myself and a swarm of Italian bees. The queen was so heavy when the swarm issued that she dropped into the grass. I picked her up and the swarm alighted on my hand and arm. I think bees are about the most interesting little creatures on earth, and I never want to be without at least a few colonies."

Tickled About It

This is a picture which has been used before of G. H. Cale, Jr., familiarly known as "Buddy," bringing down a high one from a ladder which he has put up in his queen-rearing yard which he operates. He seems to be quite tickled. He had to call his brother from town to get the camera and take the picture. There is something about a swarm which creates enthusiasm. This boy will leave anything he is doing to climb after a swarm.

No Place to Go

W. M. Holbrook, of Burton, Ohio, sends this picture. He says: "Times have changed. Years ago a man had to carry a gun or climb a tree to keep from wild beasts, but the best protection today is a few swarms of bees in your back yard. The swarm in this picture tried to get away four or five times. I got into the hive and reasoned with the bees. They said, 'Give us a larger hive, like Dadant's and we will stay home.' I tried the hives and they are better." [Believe it or not, with apologies to Ripley.]

Here They Come

This is a swarm emerging from a hive belonging to Lynn M. Aldrich, of Pickford, Michigan. He says: "This is a package colony hived April 14. This was the first year (1937) I had ever had swarming in package colonies." Well, package colonies will swarm, not often, but nevertheless, they do sometimes, when conditions are just right so they grow rapidly.

Two Hands Full

This man had his troubles at hand, more than one swarm at a time. It is always difficult to handle. We have seen as many as thirty swarms hanging on trees, and the eaves of a building at one time. Often the number of colonies may be doubled by swarms which come out in spite of everything you can do. There are such bees.

To Control Swarming

For the man who uses two 10-frame Langstroth hives for brood rearing previous to the honeyflow, the usual method of swarm control is to place the brood on top of supers above an excluder with the queen left in a new lower hive body of combs at the first sign of queen cells in the swarming season. This is known among beekeepers as Demareeing after the man who first tried it and wrote about it. Demareeing is a severe shock to the colony. In extreme cases it may be used without any set-backs. If the colony is treated in this way before it gets to the point where swarm cells are apparent, and just at the time when the colony is reaching the peak of its strength, it works fairly well.

Most beekeepers fail to realize that swarming is the result of a hive crowded with bees, lacking in ventilation, and heavy with drones, all the activities of the colony going on in a small space. Colonies used for extracted honey production should be allowed to spread over as many combs as they will occupy. Previous to the honeyflow, some beekeepers continue to allow the queen to lay wherever she will throughout the entire producing season. Others find the queen at the beginning of the honeyflow and keep her below a queen excluder.

In our own case of large hives, we make sure that each colony has abundant room for brood, and that supers are given before nectar has been crowded into the brood nest. These two points are essential. Also, colonies should have such good sets of combs that the number of drones reared are at a low point. They should have plenty of entrance room when the honeyflow begins and just previous to it.

Colonies which do not go ahead working in extracting supers, following such a comfortable provision during the breeding season, usually build queen cells not because of a desire to swarm, but because of a desire to supersede queens which are not doing well; not because the queens are old but because they are failing.

It is probably true that if all colonies could be given a young laying queen produced the current season about two weeks before the honeyflow and swarming season are at hand, these colonies would not swarm the current year. Colonies which persist in raising cells whether to swarm or supersede may be controlled easily in extracted honey production by removing the queen or caging her for ten days, destroying any queen cells which may have been built in this period, and then requeen the colony with a young laying queen. Such colonies will not even make any further attempt to swarm in usual seasons.

No Fire Now, Please!

In addition to choosing fire hydrants, fenders of automobiles, eaves of houses, brick walls and bed room windows, bees have been known to cluster on cart wheels, beekeepers' hats and queen cages, and most joyfully for the beekeeper in old beehives or other beekeeping equipment. Apparently, just anything for a new home.

Ride 'Em Cowboy!

Leon C. Nieb had this picture taken for the Niles, Michigan paper. Last winter he sent us an article, with fine pictures about a trip to the South. We hope to use this later. Mr. Nieb is one of the younger tribe of Michigan beekeepers who are now pushing in the wake of the older boys.— [Photo courtesy Niles Daily Star.]

Detail of leaf and flower of basswood.

A Plea For The Basswood

By C. H. Pease,

Connecticut.

I EXPECTED to find in the February and March issues of the A. B. J. comments from beekeepers in response to your editorial in the January number on the roadside planting of trees yielding honey or pollen or both, but not a word did I find.

I cannot understand why beekeepers do not exert their influence more toward the planting of honey-yielding trees within flying distance of their bees, whether along roadsides or in their own or neighbors' dooryards.

While I, and practically all New Englanders, do not relish the flavor of straight basswood honey, we never get it straight; it is always the comparatively small amount combined with our main crop of clover that makes an exceptionally fine blend that seems to suit most people better than the straight clover. That this is true is proved by the fact that, although most of our honey is sold here at our home place to auto tourists we mail a considerable amount to other parts of the country where clover, orange and other honeys predominate, and have even sent it to Florida and Texas.

It seems to me that the basswood, or linden, has more to commend it than any of the other trees with which our highways are lined, and it is equally good on private property, for the following reasons:

First, as a shade tree, the basswood, with its large leaves, is par excellence, far ahead of the elm, maple, or other small-leafed trees.

Second, it is a fast-growing tree and people of the present generation will benefit from young trees planted now.

Third, with the fast growing demands of increasing traffic and necessary changing and widening of our highways, slow-growing trees may be cut down to make wider roads before they attain sufficient height and size to be either useful or ornamental.

Fourth, as an ornament, or thing of beauty, none of the trees now along our highways can compare with the beautiful linden when in bloom, nor even after with its pendent clusters of seed berries. The blossoms permeate all of the surrounding atmosphere with their sweetness.

Fifth, from an economic standpoint the yield of honey would not only put many dollars into the pockets of beekeepers but the basswood flavor would improve the quality of their product, whereas the other trees, in most cases, yield very little except pollen in early spring. If half of the highway trees were basswoods there would still be enough of the others to supply all the pollen bees could gather in spring.

If the highway authorities wish to beautify our roadsides they may well consider what has been done in other countries. Where is there a highway in this country that has attained such world-wide fame for its beautiful trees as the "Unter den Linden" in Berlin, Germany, of which we read? The basswood in England is called the Lime Tree," and the "Lime Tree Walk" of Cambridge is well known. These places have become famous because they were planted with basswoods.

The argument may be advanced that basswood is not good for lumber, but this is a mistake. While it is not good for outside exposure to the weather it is admirably adapted for the manufacture of furniture and other inside uses, even for packing boxes; and the beekeeper should not overlook the fact that no wood excels basswood for their comb section boxes.

Young basswoods which will shade the entire street before many years have passed.

But are the highway people planting trees for their lumber value? If so, what will they do with the elms if they should be permitted to grow to the slaughtering age? People in these parts will not cut and split an elm tree to have it; they do not consider it worth the labor.

I have six basswoods on my place, but only two are old enough to blossom. Ten years ago I bought from a nurseryman three six-foot trees; they were not straight enough to be sold as No. 1, and although the price of perfect trees was $3.00 I got these for $1.00 apiece, because they were crooked. I straightened the trunks by laying strong splints along the sides and binding them with wire, also guying the crooked tops to hold them straight through two or three growing seasons, and I now have fine perfect trees. At the time of planting I cut down a young maple that was more than twice as high as the basswood, but it was not exactly where I wanted a tree; a few feet away from it I transplanted one of the basswoods and one of our neighbors criticized us severely for cutting the fine young maple. However, the basswood is now higher than the maple would have been and the neighbor who saw it in bloom last summer, acknowledged that it was a far more attractive tree—and my bee think so too. I gave one of my trees to a neighbor, have two others nearly old enough to bloom, and one about a foot high grown from seed.

Basswoods are not easily started from seed but it can be done; the seeds have to be scarified. If you wish to gain several years, go to the woods, or along river banks, where basswoods thrive, dig up youngsters a few feet high and transplant them where your bees can get at them; in a few years you will be glad you did it. Or, you can buy from a nurseryman (I have the catalogue before me now) five little basswoods, 18 to 24 inches high, for one dollar, and that surely is a bargain. I know one man who is going to order five of those little basswoods to transplant this spring; that man is my wife's husband.

—ABJ—

The Insecticide Problem

By Mrs. Laura Shephard,

California.

THE Imperial Valley (California) Beekeepers Association has secured a county ordinance which beekeepers believe to be an advance in the protection of the industry from the menace of insecticides.

This ordinance prohibits the application of insecticides to cucurbits (cantaloupes, honeydew melons, watermelons, and others of the gourd family) except from four o'clock in the afternoon to seven o'clock in the morning. Botanists know that plants of this type close their blossoms and become unattractive to bees in the afternoon, but B. A. Harrigan, agricultural commissioner of Imperial County, California, is the first to make definite application of this scientific fact for the protection of the honeybee. According to Dr. J. E. Eckert, the exact time of opening and closing of the blossoms vary with moisture, temperature and climatic conditions, so Mr. Harrigan had to conduct researches to determine the exact behavior of blossoms under conditions in Imperial Valley. The melon growers of Imperial Valley, appreciating the value of the honeybee to the melon crop, offered no opposition.

Other provisions of the ordinance will restrict the use of the airplane or other appliances which cannot confine the poison to the land treated. The ordinance is based on the legal principle that a man must conduct his business in a way not to injure his neighbor if reasonable methods of avoiding injury can be devised. Much credit is due Elmer Heald, district attorney of Imperial County, who drafted the ordinance, and to the Imperial County Board of Supervisors.

Resume of Ordinance No. 141

Anyone using a machine or contrivance to apply insecticides to vegetables, fruits and other agricultural crops in Imperial County must post a bond with the Agricultural Commissioner of the county in the sum of one thousand dollars for the faithful performance of all the requirements of law to protect persons and property from damage or injury as a result of the spreading of insecticides to such crops.

Anyone engaged in the business of applying insecticides to the crops of the county in addition to posting a bond must register their name and address with the Agricultural County Commissioner, and supply the commissioner with a complete and detailed description of the machinery used for applying insecticides, and the kind of insecticides used. He will also post with the Agricultural Commissioner the name and addresses and locations of all fields where the insecticides are to be applied, and the nature and character of the crops grown thereon.

All persons in the business of controlling pests must keep all equipment in a good state of repair, and only use equipment capable of performing the functions necessary to insure proper application of materials. They must keep them informed of the proper climatic conditions and the development of the pests and crop, and shall not operate at other times. When using materials known to be deadly to bees, livestock or other property, he must exercise every precaution to protect the property from damage using only such methods of application, and under such climatic conditions that loss will not be caused to bees, livestock or to other property. When using materials which may drift and become dangerous to animals or to bees or such property, they must notify the Agricultural Commissioner of their intent to use such materials at least thirty-six hours in advance of actual time of application.

They must also conform to other requirements, among them, the following: That it shall be unlawful for anybody to apply insecticides to any field of squash except between the hours of two o'clock P. M., and seven o'clock A. M., and to any cucurbitaria crop other than squash except between the hours of four o'clock P. M., and seven o'clock A. M. No application shall be made without due permits from the county commissioner. Violation of the ordinance carries a fine of five hundred dollars or imprisonment and the revocation of the permit.

Mr. and Mrs. Dadant in the Blue Ridge Mountains.

Maryland to Miami

First leg of a trip through the coastal regions when the snowbirds were disporting themselves in the drifted North.

By M. G. Dadant,

Illinois.

WHEN an invitation came to me last fall to make a trip into the Atlantic coastal region from Maryland to Florida, it was accepted eagerly. However, it was with some trepidation that Mrs. Dadant and I left our comfortable home January 3rd to cross the central valleys and climb the Appalachians to reach the coastal plain. Nature was with us. We had ideal weather.

The great Atlantic coastal region extends from eastern West Virginia and western Maryland down through Virginia, the Carolinas, Georgia and into Florida. It is roughly divided into the mountains at the west, the mid-section or Piedmont and the low lying coastal sections which are only a few feet above sea level.

Each section differs from the other, yet they are alike in that beekeepers depend largely on natural flora, particularly trees and shrubs, for honey production. Perhaps that is why this entire country, although one of the oldest settled portions of the United States, still remains thickly populated with bees. The rough terrain and swampy sections have not yielded readily to clearing for agriculture and so the honey producing vegetation has remained. With the rehabilitation of our natural resources now being undertaken, the chance for honey production in many great areas may increase rather than decrease. The Great Smoky National Forest is an example. This is now set aside and in it the flora will undoubtedly become better as the years advance.

This entire section has not been generally regarded as a great honey producing area. Perhaps it is not. There are not many large commercial beekeepers but nevertheless large quantities of honey are produced there. Honey production fits into diversified agriculture and a small farmer becomes a beekeeper on a moderate scale and disposes of his honey near home with little difficulty. I sometimes wonder if this is not beekeeping at its best insofar as it affects the general life of the largest number of people. There is no doubt that in this section the raising of bees and production of honey has added no little mite to hundreds of beekeepers without causing any glut in the general honey market through heavy production and the export of honey outside the home community.

It might be assumed that honey production here is a minor issue. Yet it is so highly regarded by the authorities that more attention is paid to it by the Extension Department than in practically any other part of the country.

I find a general wrong impression of the quality of the honey produced in the Atlantic coast region. There are some honeys that are not of the highest quality, but that is also true in other sections and I believe that some of the honeys of the coastal regions properly exploited might command not only average but high prices on account of the quality and the limited amount available.

I was particularly impressed with the sourwood honey of the Piedmont and mountainous sections which probably has no superior anywhere as a table honey. The fact that we are not generally well acquainted with it is a compliment since it shows that the large volume of this honey produced is consumed at home and does not reach a general market.

Gallberry is also a fine quality of white honey and although it does reach the general market to some extent, it is mostly consumed locally. When we see small pots of Hymettus and other honeys in the fine delicatessen stores in the large cities selling for fabulous prices, $1.00 to $2.00 per pound, we wonder why something similar could not be done with honeys like the sourwood and gallberry of the Southeast.

Tupelo honey is better known since it is produced in restricted localities in relatively large amounts and yet many may not be acquainted with the fact that tupelo is sold in the general markets on the strength of its name and better than average market prices are secured for it be-

T. C. Asher and son.

cause of its high quality and because it does not granulate.

Honeys like tulip-poplar and black gum are not regarded of the finest quality even by the native beekeepers and yet they blend with the crop in making honey which is of sufficient quality to be disposed of readily without recourse to outside markets. It is only in rather restricted areas that large producers have found it possible to carry on extensive honey production where it is found necessary to seek the general markets for a disposition of the crop. It is not likely that honey production in the Piedmont and mountainous sections of this great territory will ever become the sole occupation of many beekeepers. Yet it should play a more important part in the lives of a large number of the inhabitants of that country and make a more abundant life for them.

Our trip was planned to begin in Maryland and extend along the Piedmont with side trips into the coastal plains. Anyone planning a trip to this beautiful diversified landscape should bear two things in mind in addition to beekeeping. The traveler should certainly take along his wife to enjoy the pleasures of family acquaintances on the trip. There was a time when the women folks did not count for much in beekeepers' meetings or beekeepers' discussion but that time is passing. Now the beekeepers' meeting is a failure which does not have a generous sprinkling of women folks. Our beekeepers' meetings today are larger than they used to be chiefly because the ladies like to travel and visit and many times may influence us to stay at home if they are not invited to the meetings, too.

The second suggestion is that when you are traversing a country and studying beekeeping, let your mind digress enough and your footsteps pause long enough to take in some of the natural beauties as you go. One can never get a panoramic impression of a country through concentration on one subject alone. See the sights, enjoy the pleasures, visit socially with the people and perhaps take in beekeeping meetings, too.

Maryland

In Maryland we find probably the nearest to a combination of the white clover of the East and Central West and the natural flora of the region farther south. Most of the state is a gently rolling country, beautiful with its well painted houses and green pastures, with a smattering of tulip-poplar and other forest blooms in the western part. In the past it has not been considered particularly as a honey producing state on my part but my impression has changed, especially after becoming acquainted with the efficient work done by Mr. Abrams, of the State College in extension work and eradication of disease. Maryland promises to play an important part in honey production and particularly in that kind of beekeeping which aims for a better living and a diversified agriculture.

At the state meeting at Frederick, Maryland, in mid-January, there was a delightful group of folks, some excellent speakers, a nice exhibit of honey and bees including an old log gum. It left the impression that one would like to come back and visit more of these good people.

Bee Culture Laboratory

I consider our Bee Culture Laboratory at Beltsville, Maryland, not only an administrative head for beekeeping work throughout the United States but also the administrative center for the sub-stations now established throughout the country. The Beltsville laboratory is also the place for considerable experimental work of its own. But why on earth was ever such a location selected as the one now occupied by this laboratory! A more desolate place for keeping bees could not have been found even had the Mohave Desert of California been selected or a sand island in the middle of a lake.

Imagine the difficulties when it is necessary to feed bees almost 12 months in the year to keep up the colony population! Experimental work under such circumstances is almost impossible; at least is carried on under the greatest of difficulties.

Nevertheless Chief Hambleton and Dr. Nolan and Dr. Burnside are doing some fine work. Dr. Nolan is investigating the fixed characteristics of the honeybee and Dr. Burnside making a diagnostic study of bee diseases.

Beltsville is one of the newly established centers for agricultural improvements, governmental agricultural developments as proposed by some of our present administrative officers in Washington. The field stations for bee culture located at Baton Rouge, Louisiana; Laramie, Wyoming; and Davis, California are needed more than ever. The new central western station at Madison will also fill a real need.

Virginia

We approached Virginia by a most delightful route, coming out of eastern Maryland, through Morgantown, Shenandoah Valley, then over the newly built Skyline Drive extending from Shenandoah the entire length of the Virginia Blue Ridge to Lynchburg. This is one of the most worthwhile projects under government construction during the past few years. We understand the Skyline Drive is eventually expected to carry the traveler the entire length of the Blue Ridge Mountains from West Virginia to North Georgia. How magnificent it will be.

Virginia also has never been given much consideration among beekeeping states largely because its commercial honey producers are few. Since there are many fruit growers there, however, the keeping of bees is a natural and necessary addition and we find many beekeepers adding to their revenue by taking their bees into the fruit sections at apple blossom time. Here we find, too, the sourwood and tulip-poplar in abundance in the Piedmont section.

At the Virginia meeting there was much discussion about the factors which contribute to the nectar yield of the sourwood. Some detailed investigational work is needed not only with sourwood but with many other honey plants in order to understand the main nectar secreting factors. In 1937, in Virginia, sourwood early was promising. Bees built up well and sourwood started to bloom with ample nectar. Bees became very strong and there was considerable swarming. After a week, however, the sourwood flow shut off and the crop was almost completely a failure. Why? So this year again, Virginia beekeepers are trying to estimate the favorable and unfavorable factors which will allow them to plan on the sourwood since sourwood to them is the best crop. Other honey plants are only contributory, in the Piedmont and mountainous sections. In the coastal plain there are in addition the gum, tupelo and gallberry.

At the two meetings at Lynchburg and Suffolk, measures were taken to provide regulations for the control and eradication of bee diseases. So far this control has been intermittent without definite planning. Since the entrance of the automobile into the picture and the large number of bees that move through the state and across different parts of the state for fertilization purposes, it is imperative that an ispection system be installed which can handle the situation properly.

If you are looking for the natural beauties of Virginia, you will want to see not only the mountains but the Natural Bridge and also visit Cape Henry and eat their wonderful oysters. Mrs. Dadant has never been a raw oyster enthusiast but on this trip Mr. Cary, of Norfolk, Mr. Hiett, and perhaps the salt air contributed to her conversion. She now swears by raw oysters on the half shell if they can be procured fresh. But that means an extra trip to the coast and I hope to appease her hunger another way without leaving the Mississippi Valley.

We have heard auctioneers crying their sales of tobacco over the radio. Experiencing it first-hand we find the radio version no exaggeration. See a tobacco auction when you are near.

Nectar Preference; Red Clover

By John Spiller,

England.

I HAVE read with interest the article, by Dr. John N. Martin, about the price of red clover seed (American Bee Journal, March 1938, pp. 102-104). I feel there is a point that is overlooked by the writer and which is also not considered by many beekeepers.

Dr. Martin has gone to a lot of trouble in explaining very clearly the better chances the domestic bee has of working on the Zofka clover, compared with the red clover. It is apparent that he does not know of the important fact that the domestic honeybee does not care for the flavor of the red clover, and I presume the Zofka is similar. When there is nothing else for the bees, we know they must do their best to get the nectar from the red clover or starve. We also know they go to the red clover for pollen only when other flowers are giving nectar with very little pollen. We continually hear of the desire for a strain of honeybees with long tongues, but this bee would be useless for red clover, unless it had a craving for the flavor of this flower.

If the Americans wish to raise red clover seed, they must have the correct variety of wild bumblebees. Where the land is extensively cultivated, usually the farmer unknowingly destroys the wild bees. Up to 1911, the farmers of New Zealand could not grow seed from their red clover and always had to buy from abroad. There were no bumblebees in New Zealand. The government experimented by having two dozen bumblebees, of the correct variety, sent over from England, and after twenty years the New Zealand farmers were growing more seed than they required and were even able to export it.

All the hundreds of varieties of bees have their own fancies for nectar. Nature has created them like this and each is built in the correct form and size suitable to the flowers they visit. There is a slight variation for taste, even with our domestic bees; two hives, one of black, the other of golden Italian bees, only a few yards apart, can produce totally different honey.

We have in the British Isles about sixty varieties of wild bees(**Andrena**) and all have their own peculiar ways of living, and their own preferences for flowers. One prefers the thistle flower and another only visits the bluebell, living as a bee only the few weeks while the bluebells are in flower.

Of our seventeen varieties of bumblebees, one or two are considerably more valuable than the others in the production of red clover seed. The bumblebee is the only solution for the successful growing of this seed. It is hopeless for the beekeeper to have any faith in the success of the Zofka clover.

Dr. Martin has certainly given proof that the domestic bee can collect nectar from the Zofka, but it is extremely doubtful whether the honey produced from it would be salable. If the nectar is only third rate for the bees, it is certain it will not be a choice honey for human beings.

—ABJ—

Home From the Fireweed

By Harold Luckner,

Oregon.

[During June the trek to the firewood areas takes place. This account was written for American Bee Journal about a year ago after the author had completed an outing in the firewood regions of this famous firewood state.—Editor.]

I HAVE just returned home from a vacation tour of the fireweed country of western Oregon. A friend and I boarded the train which runs between Portland and the coast. Formerly this train handled passenger traffic to the beaches. Now it is engaged in carrying logs and hooks an accommodation car on the end of the train for the occasional traveler. We took the train on the ocean side of the coast range and traveled inland fifteen miles. In some ways this train reminds me of the Toonerville Trolley of the comics. We were something like an hour and a half covering the distance. Once when the train stopped I saw some huckleberries growing near the track. As I swung off the car I called to the conductor, "I'm going to get some huckleberries."

"Sure, eat all the berries you want. We're in no hurry."

We move on again. A little later one of the crew yelled out, "Washout."

Gosh. If the track was washed out there would be no telling how long we would be delayed. "Is it bad?" I asked.

He looked at me and laughed as he pointed at a mountain home. There was a washing on the line. "There aren't two days of the year when there isn't a wash on that line." On our way back four days later we had another "washout."

We reached our destination — a burned out and deserted logging camp. The elevation changes abruptly in these hills from about five hundred feet to twenty-eight hundred. This happens within two miles. Naturally the fireweed at the higher altitudes blooms later than that lower. Hence there is a more extended flow than might be expected in many other places. From the top of these ridges we could see hundreds upon hundreds of acres of fireweed growing so densely that one could not look down between the plants and see the ground. It averaged five feet in height and varied from three to eight. It was very rugged country, logged off for the most part and burned a couple of times in recent years.

One morning as we were standing on top of a 2000 foot ridge I heard a twig snap. I looked where the sound came from and saw a great deer with four or five prongs still in the velvet. He was so close I could have hit him with a sling shot if I had been so minded. He gazed at us with mild curiosity then leaped gracefully over the logs and brush and disappeared down the hillside. The country was crisscrossed with deer trails. We saw plenty of bear signs too as well as a number of places where coyotes had bedded down. On our last morning we heard a cougar scream—presumably over a kill. People who claim that a cougar's scream is terrifying are suffering from an overworked imagination. It sounds more like a baby with the d. t's.

The forest service maintains a lookout in this region. We went up to visit him. He had had two other

visitors in six weeks and he sure was glad to see faces other than his own. We had dinner with him and left in time to reach our camp before dark. When our time was up we went down the mountainside to the railway tracks. While waiting for the train—there is no schedule and we had to wait five hours—we talked to an old trapper who hunts bee trees on the side. He told us how he sets out his "bait box" and runs his lines. As he uses honey instead of syrup in his trap I felt mighty glad he wasn't hunting bees in the vicinity of my bees. If that honey he used was badly contaminated with American foulbrood what a mess he would make! We flagged down the train when it finally puffed into sight and swung on board. Truly we were leaving a beeman's paradise. Great hillsides covered with fireweed and not an apiary within miles.

Next we toured by automobile the rolling hills of the Vernonia region which is on the east side of the coast range. This too is logged off land. But some of it has grown up in brush and in places the fireweed is spotty. But there are large, very large areas where fireweed grows in abundance. The logging interests are destroying the best timber left in the United States. The only refreshing thing about it is that it results in some of the best bee pasture in the country. So bring in your bees, friends, and get a few of the thousands of pounds of honey now going to waste. But stick around your yards. In some of these places there are plenty of bears left. If a bear makes a pass at a colony it'll land in the next county—in pieces.

—ABJ—

Honey in Diabetes

By Howard Potter,

Massachusetts.

[A discussion of the article, "A Chemist's View of Honey, Diabetes," by Eastman Lynn in the July issue, 1937, in which Mr. Lynn goes into the technical side of diabetes and the place of honey in the diet for diabetics, concluding with the statement, "Any marked benefit in the use of honey for diabetics is questionable and recommendation should be left to the physician."

The article was prepared at the suggestion of Dr. V. G. Milum, of the University of Illinois, with the cooperation of the Department of Chemistry, so should be quite authentic. Mr. Potter who here comments on it is also a trained chemist of Harvard University and a large beekeeper.—**Ed.**]

Often, when I read an article, I have the desire to put in my own nickle's worth on the subject, but usually this feeling soon ends. With a few articles, however, it is different. Such a one is "A Chemist's View of Honey, Diabetes," by Eastman Lynn. It is an admirably presented, brief, and accurate picture of the fundamental facts of diabetes and the use of honey.

However, I think, personally, there is some hope for the use of honey in the diet of diabetics and some authority should be induced to put the matter to a test. My feelings are based on these considerations:

First, no beekeeper should prescribe the use of honey to anyone with a serious case of diabetes because if the patient ate more than a small amount, it might easily result in sudden death. Experimentation must be left to an expert who knows what he is doing.

Persons with a deficiency of insulin know quickly and definitely when they have taken more than their tolerable amount of carbohydrates because of the discomfort that follows. **Many such persons seem to be able to take much more carbohydrates, however, in the form of honey than in any other way.**

And herein lies the hope that it may be useful to some people. It is certainly of enough importance to sufferers from the disease to merit a thorough study to determine if it is really true, and if so to what extent and whether the effect of different kinds of honey is the same. Any doctor or biochemist dealing with the disease could probably get this information without much difficulty.

Some text book facts are encouraging. All insulin preparations are ineffective when taken by mouth and must be injected. Some extracts have been obtained from plants which when taken by mouth, greatly increases the "mileage" that can be obtained out of insulin. Such extracts increase the "mileage" that can be a partial diabetic can tolerate, or likewise decrease the amount of insulin a total diabetic must take. (For example, Wagner and Allen's "Myrtilin" and C. A. Mill's extract from green alfalfa and sweet clover leaves, Vitamin B may be related to this kind of activity.) Is it too much to hope that the little explored 3 per cent of the material that makes up honey may include some substance which will help the person, subnormal in insulin, to use the sugars found in honey?

Main Roads to Greater Popularity

A program for extending the use of honey in several main streams of everyday eating was proposed at the sessions of the winter school of the Washington State Beekeepers held at Puyallup, Washington, recently. Two major means of further popularizing the world's most ancient and delectable sweet, time-hallowed since pre-Biblical days, was declared to be in baking, as a substitute for sugar, and for widespread sweetening of after-dinner drinks like coffee and tea. And to these two main objectives several others were added.

Asserting that the general public, or average consumer, must be made more **Honey Conscious,** if beekeeping throughout the large Pacific Northwest honey-producing state is to be profitable, President I. L. Swain, of Prosser, Washington, of the state organization of beemen, contributed outstandingly to discussions at the forum, calling particular attention to the host of ways in which honey may extend its usefulness.

While a dozen or more excellent suggestions for furthering everyday popularity of the commodity closest to the interests of all members of the association were made by Mr. Swain, several were particularly stressed.

Deserving greater support was the plan to sweeten coffee and iced tea with honey in lieu of the almost universal sugar. Honey in this respect was upheld not only for its imparting of sweetness to the drink, but also for its distinctive enriching flavor.

Second large objective is to further usage of honey to replace sugar in baking, the making of cakes, cookies, and even bread. It was stressed that beemen should foster honey in baking—especially since it was pointed out by Mr. Swain that honey draws moisture from the air, and that bread made with this ingredient in preference to sugar retains its freshness for a whole week—which indicates the great preserving quality of honey.

As for cookies made from honey and kept in the old cookie jar, they grow more mellow and moist as they grow older—instead of becoming dryer and harder as do other types of cookies, the longer they are kept.

From the angle of an all-around sweet and diabetes preventative, honey was hallowed anew, while numerous industrial uses, such as beeswax for candles, in dental work, and for polishing delicate glasses, such as telescopes, were also stressed by Mr. Swain, as he pointed to further profits in that direction.

C. M. Litteljohn,
Washington.

Child Reared on Honey

By Carroll Van Court,

California.

Carrol Van Court and his Literary Digest baby.

Some of you readers may remember reading along about 1931, the little article about my son, entitled "The Literary Digest Baby," in the Digest.

As an athletic instructor of many years' experience in Los Angeles, and Pasadena, I believe that growing boys and girls need a certain amount of sugar in their diets, and I believe that honey is the most healthful sugar available.

Therefore, I decided that "the famous Literary Digest Baby," as he was called, should be trained along as scientific lines as I was capable of training him. And so we gave him no candy and no sugar, until he was eight years old.

To give him the sweets that he needed, we used honey and fruits. He never tasted a bit of candy before he was eight years old, and even now he is allowed only an occasional Hershey bar with his honey.

While teaching handball in the daytime, I was working nights on a newspaper, and was often tired. My wife would get me waffles and honey to perk me up, and they still are my favorite breakfast.

Among my handball pupils and friends are the prominent lima bean and honey shippers, Bryant & Cookinham, of Los Angeles, who do a big business yearly. After I played handball with them a few times, I understood why it is that they always play a "sweet" game. Influence of environment!

I always recommend honey as an important part of every athlete's diet, especially in cold weather.

Our "Digest Baby" is pretty healthy, and we think it is due to the fact that he has eaten no sugar, very little candy, never had a pie or doughnut in his life, and gets honey every week. Some day we hope to make a real man out of him. We might even suggest a possible slogan for a recipe: "Let him **bee** healthy." Eh, what?

—ABJ—

Beekeeping in India

The Imperial Council of Agricultural Research of India has published a book entitled, "Beekeeping" by C. C. Ghosh. It is a book of nearly a hundred pages on enameled paper and numerous illustrations. There are two splendid color plates showing the races of bees and the life history of the wax moth.

The native bees of India are unlike ours. They are of three races including the giant Dorsata, and the little bee not much larger than a house fly. The race commonly kept is somewhat smaller than our common Italian race. The book is published by the Manager of Publications at Delhi.

—ABJ—

A New Kind of Wheelbarrow

I SEND you here a picture of my son holding the handles of a new kind of wheelbarrow with two wheels instead of one, regular auto wheels with air cushioned tires, much easier on the supers full of honey. It is so balanced that I haul in honey myself. Six supers can be placed on the bottom but twice as many could be hauled just as easy. It is strongly made and it has received quite a few favorable comments at our State Field Meet here.

Just a word about Junior. He has always liked honey which, of course, pleased my father, Mr. Allemier, very much. Dad always thought everyone should eat honey every day. Junior is twelve now and helps me much in the apiary. [Mrs. Ruth Tucker is the daughter of the late J. H. Allemier of Delphos, Ohio, who was one of our best known beekeeperss.—Ed.]

Ruth Tucker,
Ohio.

A Young Beekeeper

This little fellow, 2½ years old, went to town to get a shipment of bees and later helped himself to a package, while his mother took the picture. He spends much time looking over the pages of each issue of the Journal, with such exclamations as "The bees are making honey, now," or "Bees got honey now." He is a real honey boy.

Frank Nicholson, Jr.,
Ontario.

Freddie certainly is starting on a path which will lead him along by his father's side. Somehow it gives the good beekeeper a feeling of security when he knows that he is not just taking care of his own interest when he makes plans for his beekeeping, but that some other member of his family may sometime benefit from them and carry on where he left off.

—ABJ—

Manipulating Hive Covers

With a little planning it is possible to save much time in the apiary. For instance, it is seldom necessary to remove the weights on hive covers or to lift the hive covers more than once. I usually place the first hive cover on the second hive. When finished, both hive covers are placed on the first hive, weights and all. Then I work the second hive, which is now without a cover, and then place the third hive cover on the second hive, and so on down the row until the last hive is finished. Then the extra cover on the first hive goes on the last hive. Now, think that through.

Simple, isn't it? Notice you only lift half as many covers. That saves time and work. This can be varied to use when there are groups of two, or scattered groups of hives. By planning his movements and where he places tools, the beekeeper can save much time and do less work.

Did you ever look for the hive tool before picking it up? Why? Where do you place inner covers and excluders while inspecting? The smart way is to figure out the most efficient method to do these things. I'm a bit lazy too. What your head doesn't do, your hands must.

T. O'B. Clouse,
Ohio.

—ABJ—

All Teed Up

This goat is not exactly tipsy but it is surely on top. The picture was sent by J. E. Pate, of Arkansas. Goats and sheep are good lawn mowers for an apiary. They do not seem to mind the bees, nor do the bees seem to be disturbed by them. Sometimes sheep push hives around a bit in early spring but that is offset by the fact that they keep the grass looking like a front lawn.

This goat, Molly, is a Saana doe kid. In her own estimation she is worth more than a whole apiary. Her twin, MacTavish, was too busy elsewhere to be caught in the picture. Molly was caught in time to save the Starking apple tree under which the hive stood. She likes it. Next to the fruit she seems to like the bark of the tree. One bee can cause her to "take off" with a gunned motor but twenty minutes is enough time for her curiosity to erase all memory of stings and the bark of the apple tree calls to her again.

Proof of the Pudding

Beekeepers tell of the use of excessive amounts of arsenic on food, and the danger which results to beekeeping from the use of arsenical sprays both on cotton in the South and fruit and vegetables in the West. We read from the Food and Drug Information released by the United States Department of Agriculture, January 31, of the seizure of 2,100 bushels of apples, 200 bushels of crab apples, 177 crates of cauliflower showing arsenic spray residues.

This same report tells of many decomposed, dirty and infested food products including canned goods, frozen fruits, nuts, dried fruits, flour, cereal. We are not yet on a safe basis, and without the watchfulness of the Food and Drugs Department, where would we be?

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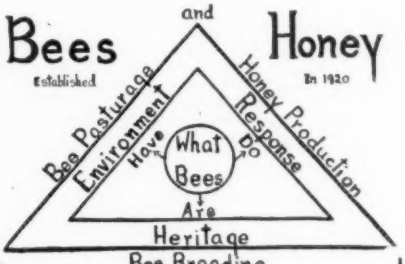

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All Around the Bee Yard

By G. H. Cale

WHAT a difference there is in locations. Some people think that since bees react to the same stimuli, there can be very little difference in the response of colonies in the usual course of the season; but that is not true. The bees vary as the places vary. There is a difference in locations, and the difference affects beekeeping in a large way.

This spring we have had bees in three entirely different kinds of locations. One furnished pollen and nectar as early as the first of February. The colonies built rapidly. They needed but little food. Practically no extra food was given to these bees. They wintered clean and bright, and by May 1 were bouncing big colonies.

In another location the bees do well. The main honeyflow is from the clovers, which they do not have in the early spring location just mentioned. However, this second location is very poor in fall. The bees quit brood rearing early and go into winter quarters more or less old, and seldom furnish the brood nest with late honey and consume considerable stores during a long fall period. Then, in the spring, they are often short, since the early nectar is not as abundant as it should be. They require excessive feeding many years even with food chambers. As a result, the bees are slow to reach good strength for the flow.

The third location is one in which there is a heavy fall flow, the bees breed late, and go into winter quarters with many young bees. Therefore, they build up rapidly in the spring, but not as rapidly as in the first location. If the main flow were good during the summer, this location would be the best of the three. There is something lacking in every one of them.

Probably there is no such thing in beekeeping as an ideal location. Beekeepers are beginning to understand this and migratory beekeeping is doubtless the result of this dissatisfaction.

There is much to be said on both sides of the question of what kind of honey to produce. Many good beekeepers are again becoming interested in comb honey, because the price of extracted honey has not been favorable, while the demand and price for comb honey in comparison has remained good.

It is quite probable that ninety-nine beekeepers out of a hundred could not produce comb honey, simply because they are not located where it would be profitable or desirable to do so, or because they would not be able to do so since they lack skill enough. On the other hand, it is quite evident that the market for comb honey is still good. The average buyer of comb honey in quantity is not as numerous as in the comb honey days, and the buyers who do favor comb honey demand a high class, well-graded, fancy product, which requires even more skill by the beekeeper.

However, for the beekeeper who is located and trained for the job, comb honey production is still a highly profitable occupation.

—o—

THE subject of new honey plants is perennially interesting. On trips through Indiana last winter I saw several acres of Hardigan alfalfa, which were yielding honey well for beekeepers in western Ohio and eastern Indiana. It is worth looking into. In the fields I visited there was a fine green stand and healthy crowns, and the bees are reported to work it heavily. It is being grown in a number of places in Indiana and western Ohio, but not much has been said about it. It was developed in Michigan. We hope to be able to try it.

—o—

BEEKEEPING is passing into the hands of the careful speculant. A good example is Randolph County, Indiana, which used to be at the head of the beekeeping counties with over six hundred beekeepers. Traveling through the county now, many of the apiaries that used to be apparent from the road are no longer to be observed. One might think that the number of beekeepers would now be small in comparison with what it used to be. Nevertheless, figures show that there are more beekeepers in the county than there were once. However, an analysis of the latest census is interesting. Out of a total of 665, there are 70 who have from 15 to 180 colonies. The majority have from 1 to 5 colonies. The distribution in the old days used to be more even. There are now more larger and careful beekeepers, and the smaller beekeepers are only those who last a year or two.

AT our beekeeping schools and short courses, the trend is also evident. At the short course at Columbus, Ohio last winter, I saw more commercial beekeepers at one time than I had ever seen before: probably there were sixty commercial beekeepers out of the one hundred fifty to two hundred who attended the short course with anywhere from a hundred to twenty-five hundred colonies each. In fact, since I was on the program, I was a bit scared. I didn't know what to tell them. There was L. C. Gardner with a thousand colonies, Otis D. Achord with five hundred colonies, Prof. Dunham with five hundred colonies, Benninghof, of Columbus, with nine hundred fifty colonies, Emerson Long with twenty-five hundred colonies, Alan Eby with about three thousand. (What is the use! I can't remember all of them!)

—o—

THERE is so much interest in the two queen system. We are trying it ourselves this year. We may have something to say about it later. When you find that such men as Mr. Todd, of the Laboratory, at Davis, California; Dr. Farrar and Dr. Sturdevant, at Laramie, Wyoming; and Dr. Haydak, of Minnesota, verifying the reports from beekeepers that the use of two queens working together by whatever method the beekeeper uses will produce more than the crop of either queen working in a colony by herself, you have to listen. One beekeeper reports an average increased yield of fifty per cent by the use of a two queen system. Oh boy! I hope that is so, but it will take a good many of us checking and rechecking and exchanging experiences to determine the general average result of such a plan.

—o—

THERE is much talk about supersedure in package bees. We have bought many packages, produced new colonies ourselves by divisions, using queens from southern sources at the same time we were receiving packages. My belief is that supersedure is caused by two things: (1) poor queens (and this is the fault of the breeder); (2) over-manipulation (and this is the fault of the beekeeper who receives the packages).

—o—

IN making early divisions from overwintered colonies in our own apiaries, we have found that there is a great variation in the quality of queens. Some breeders take care of their stock well and keep it up well; others may establish good stock, but with succeeding seasons, they apparently suffer a relapse in quality without recognizing it themselves. I think breeders as a whole can go a long way yet to improve the quality of

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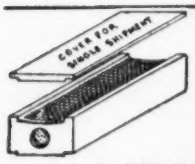

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the stock which they send out. There are too many more culls received than good queens. In some lots at least 50 per cent have been culled out the first two or three months. In other lots a higher percentage remains. Some are so poor that we do not care to secure bees from the same source again.

Queen breeders must cope with this problem. If we in the North are to continue to buy queens and establish a profit for the breeders in the package bee and queen business, they must keep queens on which we can rely to produce heavy honey-getting colonies. Breeders should check their queens constantly with customers, receiving breeders back from customers and testing them themselves so that they constantly keep up the quality of their stock. Some breeders are doing this. The result is inevitably good.

—ABJ—

California Annual Report

The Annual report for 1937 on Apiary inspection in California issued by A. A. Brock, director and H. M. Krebs, supervising entomologist and apiary inspector has been distributed.

This covers not only apiary inspection but records of migration, both interstate and intercounty.

In all, 10,000 colonies were moved into California during the year and 15,000 moved out of the state. 185,000 colonies moved between counties and 100,000 colonies were moved in the counties themselves. This shows how remarkably large has become the item of migratory beekeeping, particularly in traveling from one crop to another within relatively restricted areas. Perhaps California does this more generally than any other state but it is typical of the beekeeper, going to his honey crop rather than setting his bees down and waiting for the crop to come to him.

Out of a registration of 292,918 colonies in California, the report shows 243,281 inspected in 1937. Of these, 3,318 were diseased, or a percentage of 1.36.

The largest percentages of disease are shown in counties apparently outside of the main producing areas. Likely also in these counties which have a relatively small number of bees, it may not be possible to get the cooperation of county authorities in the way of appropriation for the necessary help from the larger beekeepers of such counties.

The report is very creditably arranged and shows that California is rapidly reducing her disease problem to a minimum.

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The Editor's Answers

Solar Extractor

Can you give me some idea of how to make a Solar extractor simply and cheaply? NEW YORK.

Answer.—We have a Solar which we used all last summer that is very inexpensive. It is simply a box of any dimension you wish, with a glass cover which fits on top of the box. At the top edges of the box are strips to keep the glass in place. Inside is a tin slide which is pushed down through the slot cut by saw in the side of the box to give the tin a slope. It is fitted into place and the combs to be melted are placed on this slide. A piece of wire screen is folded crosswise at the lower edge, so that the wax will run down the slide into the screen and drip into a container in the bottom of the box. The box is placed on legs above the ground at any desire height.

Our Solar costs us about $2.50, not including labor. We may be able to give a description and picture of it at a later date, but I think from this letter you can get some idea of how to make one. It works very well.

—ABJ—

Extracted or Bulk Comb

I started with the Modified Dadant hive and will continue with it, but I must make plans whether to produce extracted honey or bulk comb. I keep the bees for pollination and will sell fruit from the house, and thought I might have ready sale for honey in the form of honey chunks. Please comment. WISCONSIN.

Answer.—There is no reason why the regular Modified Dadant extracting super should not be used for bulk comb honey. Many large producers of bulk comb or cut-comb honey are using them for that purpose. Also, any time you may wish to do so, you will be able to go into extracted honey production and not change supers.

—ABJ—

Success in Beekeeping

Can an inexperienced man without agricultural knowledge make a beekeeper? CALIFORNIA.

Answer.—Yes. Beekeeping is not related to any form of agriculture sufficiently to prevent success. All that is needed is experience with bees, and that comes only from working with them.

What would your suggestion be as to the best way to start?

Answer.—Read all you can get, especially about the fundamentals before it is time to get the bees. Then buy new equipment with package bees ready to go about the 1st of May. Package bees should arrive perhaps April 25, and be placed in the hives which have been previously prepared for them.

—ABJ—

A Living From Bees

How long will it take a beginner, who must work elsewhere for a living, to build up to where the bees will give him an independent income? CALIFORNIA.

Answer.—If you have enough capital so that you can put in an estimated investment of about $20.00 per colony for complete equipment, including honey house, honey handling equipment and vehicles for bee yard work, I would say five years, depending on whether your location is commercial, capable of giving an average of 100 pounds surplus for a colony each year, or whether it is less valuable that that.

If you must maintain yourself from some other effort and have a limited capital so that the investment in bees must be furnished by the returns from the bees, and your location is a good one, I think probably ten years would be a fair period. If your location is poor, it may be necessary to limit the number of bees you keep and always continue with some other effort to give you a part of your living, unless, by chance you can secure work in a location where beekeeping is commercially profitable.

—ABJ—

Opportunities

What are the chances in beekeeping as a whole? CALIFORNIA.

Answer.—Probably beekeeping compares favorably with any other agricultural effort. It is as good as any crop growing, because crops depend on weather, soil, moisture and uncertain factors. Beekeeping also depends on them. As far as the return from bees is concerned, it is as good as any crop-growing venture. Animal husbandry, where the conditions are more nearly under the control of the operator, may be more satisfactory. Much depends on the fitness of the individual for beekeeping, and whether he likes it or not.

Unfortunately, the market for honey is a chaotic mess, and many beekeepers must sell their honey for themselves in the best way they can. There is not yet a regularly established market for honey as there is for poultry products, dairy products, or the fundamental farm crops. However, it is probably as good as the market for most truck crops and other secondary agricultural products.

—ABJ—

How to Mark Queens

I have fifteen queens to clip and would like to mark them at the same time. Tell me how to mark the queens. IOWA.

Answer.—A small can of quick drying lacquer which may be bought in a drug store or 10-cent store will do. Red is the best color. The colors may be varied to indicate the years in which the queens are marked. Apply the paint with a camel's hair brush in small drops on top of the thorax.

—ABJ—

Use of Carbolic

What per cent dilution of carbolic acid do you use in driving bees from supers? WASHINGTON.

Answer.—We do not dilute the acid. Liquefied acid is sprinkled on acid covers, full strength.

Gassing Bees

What do you use in gassing bees to kill them? WASHINGTON.

Answer.—Use Calcium cyanide in some form such as Cyanogas or Calsyanide. This comes in pound boxes that ought to cost you about 65 or 75 cents. Use it full strength. Put some on a hive tool in the entrance of the colony. Two or three such helpings will kill the bees. Push the powder well into the entrance. Keep your head away. It is dangerous. It seldom bothers out-of-doors but do not breathe while handling the powder. There is no need to shut up the colony. It will kill all the bees in the colony and any that fly in the entrance. When you are ready to leave, take the hive with you where it is safe to handle.

The gas soon escapes and will no longer bother. We also use the same material underneath piles of supers, closed tightly at the top, to control wax moths.

—ABJ—

Poisonous Honey

It has been stated often that honey gathered from certain flowers, particularly mountain laurel, may poison human beings. What is your opinions? NEW JERSEY.

Answer.—A number of plants are said to yield honey which are considered poisonous. Kalmia latifolia, the mountain laurel, occurring in eastern United States, is the chief one. Samples of this honey, however, submitted for analysis do not show any poisonous contents. It may, however, contain some narcotics which affect persons who eat it.

—ABJ—

Cost of Production

Is there any money in raising bees and how much per pound does it cost to produce honey? MINNESOTA.

Answer.—Average figures show a cost of $4.00 a colony for production. An average location will give 75 pounds of extracted honey per colony per year for ten years, which will probably sell for about $3.00 gross in large lots.

In other words, many beekeepers are not making a profit, since it costs them more to produce the honey than they get for it, but since they put in their own labor, pay themselves nothing, use the family car, the family gas, and the help of children or wife, they think it is profitable.

On the other hand, a good commercial location which may be relied upon to produce a hundred pounds of extracted honey per colony each year will yield a gross of about $5.00 and the cost, with skilful management, should be kept down to about $3.00 per colony, so there is a clear profit of about $2.00 per colony each year. From this, an estimate can be made of the number of colonies which must be kept under management to contain any given sum of money.

To find such a location is, however, another thing. Much experimenting and surveying, and then often after a location is found, it may last only a few years, and another then must be obtained to keep up beekeeping on this basis. So, on the whole, for the great majority of beekeepers, the business lends itself more as a side line than it does as a main occupation. Worked into a diversified project, it will do as well as anything else.

Meetings and Events

American Honey Producers' League.

When getting ready to attend a meeting you are possibly very much interested in knowing something about the place where the meeting is to be held. Next December you are expected to come to New Orleans, so the secretary, assisted by the Association of Commerce, presents you a short account of scenic New Orleans.

When the average person speaks of scenery, the picture that comes to mind is a sweeping landscape set against a background of snow-capped mountains or a row of dimly purple ridges. New Orleans, however, set between the Mississippi River on one side and Lake Pontchartrain on the other, is quite level, saucer-shaped as it were, with the rims being the levees holding the river to its course. And the southern city has compensated for its flat topography by developing into a garden spot beyond comparison.

Most beautiful spots of the city are the parks, two of which are among the largest and most complete in the country. City Park, larger of the two, is 1382 acres in extent. Here, the natural beauty of the Louisiana landscape has been preserved, consisting of cypress islands, massive live oaks, palmetto palms and a colorful variety of wild flowers. Of great interest are the famous Duelling Oaks beneath whose spreading bough affairs of honor were settled in the tempestuous days of early New Orleans. Near the swimming pool is Suicide Oak, scene of numerous deaths before this section of the park was developed.

In addition to these natural advantages, the park also has an artificial lagoon for boating, fishing and also has other recreational facilities such as golf courses, tennis courts, picnic grounds, a natatorium, bridle paths, baseball diamonds, a stadium and the Isaac Delgado Museum of Art.

Audubon Park, located in uptown New Orleans, presents much the same aspect as City Park except that it also has a zoo and an aquarium, and a much larger natatorium erected at a cost of $250,000. This park, which extends from St. Charles Avenue to the river was bought by the city in 1871 from the descendants of Etienne de Bore and improved in 1884 as the site of the Cotton Exposition. The tract of 287 acres was originally a plantation and is said to be the spot where sugar cane was first successfully planted in 1794-96. Other attempts had preceded this but all had ended in dismal failure. In 1887, the park was named for John Audubon, famous Louisiana naturalist, whose statue is in the park.

Two giant oaks, both nearly 200 years old, stand in the back of the park and are a center of tourist attraction. The larger measures over 11 feet in diameter and its true age has been estimated at various figures, but there seems little doubt that it approaches the two century mark. The pair are called the George and Martha Washington oaks.

Unlike City Park which represents the typical growth of the Louisiana swamp, Audubon Park was laid out as an English deer park, with irregular belts and groups of trees breaking up the broad expanses of closely cropped smooth grass land.

Audubon particularly contains some rare and interesting trees and shrubbery seldom found outside their native habitat. Papyrus plants, native of Egypt; rare ginkos of China; the Spanish and Portuguese cork trees; the Asiastic silk trees; the Australian bunya-bunya and eucalyptus; and the Old World Ligustrum are found in various spots. Another foreigner is the camphor tree, imported from Japan and China, but it grows so readily in the Louisiana climate that it has spread over the vicinity and is familiar to all Orleanians.

Flower gardens, with all varieties of annuals and perennials, abound throughout the parks, with roses and lilies playing a prominent part. In Audubon Park, the superintendent, Frank Neelis, has developed a new species, the Neelis Rose, and it is planted in several locations. City Park has a large rose arbor, located immediately across the drive from the tennis courts. One of the most beautiful spots in Audubon Park is an iris garden, where extremely beautiful plants have been developed.

West End Park, at the western tip of the city on Lake Pontchartrain, is a small nicely constructed rectangular park noted for its beautiful rose gardens. A parapet and railing lines the edge of the park, but elsewhere along the lake shore there has been constructed a concrete sea wall in the form of steps going down to the water's edge. In one of the most remarkable reclamation projects ever attempted what was once a cypress swamp was converted into several thousand acres of fertile land by pumping sand and silt from the lake bottom into the area behind the sea wall.

Today, a five and half mile paved road follows the curve of the lake, at one end of which is the famous Southern Yacht Club, second oldest boating club in the country; and at the other Shushan Airport, most modern air terminal in the world. Lake Pontchartrain, so named by the Sieur de Iberville for the Bourbon minister of marine, is the third largest lake entirely within the boundaries of the United States. An arm of the Gulf of Mexico, its waters are clear and brackish.

Being so flat, New Orleans has to be artificially drained, a feat accomplished by means of numerous pumping stations and drainage canals. At one time these canals were an eyesore, defacing the main streets, until the progressive city capitalized on this defect by laying large pipelines in the canals covering them over. Then wide neutral grounds were constructed and landscaped and planted into blossoming floral gardens. Most recent of these developments is the planting of the Azalea Trail along the main ground streets of the city. More than 52,000 plants have been planted along the 55 miles of neutral ground, a work accomplished at the cost of some $2,000,000. But Orleanians, seeing the beauty of the plants, have concluded that the expenditure was well worth while.

To compete with these public floral gardens are numerous private ones, especially in what is known as the Garden District and along the exclusive residential streets such as St. Charles Avenue, Audubon Boulevard, and Audubon Place. The Garden District is noted for its antebellum homes, some of which date back to the 1830's and 40's. They are large beautiful mansions characterized by huge white columns and wide verandas, high ceilings and ornate interiors. All are set in large gardens where gladioli, azaleas, lilies, roses, dahlias and zinnias grow in profusion, against a background of trailing and climbing ivy. Favorites among New Orleans small trees and shrubs, found in homes and on many streets, are oleanders, hybiscus and Crepe myrtle.

No trip to the city is complete without a visit to the Versailles Oaks at Chalmett. The 79 trees in this group, planted in an impressive aisle-like formation are the finest grove of live oaks in existence.

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Joint Summer Meeting

Plans are under way for a joint summer meeting with the North Dakota Beekeepers Association. Several

years back a joint meeting was held at Crookston and beekeepers expressed themselves that similar meetings should be held in the future. So, this year, the Minnesota Association meets with the North Dakota Association in Grand Forks.

The date is July 28 and 29. A two-day meeting is being arranged in order to give southern Minnesota beekeepers time to take in side trips to the yards and honey houses of commercial beekeepers. So, be sure to put the trusty bee veil in your hip pocket when you make the trek to Grand Forks. Because it is a long journey for many Minnesota beekeepers, the North Dakota Association is making big plans to arrange a program of special interest, in showing how commercial beekeepers operate.

A side trip for the Ladies Auxiliary is to be the Mount St. Benedict Convent and Academy, at Crookston, where so much has been done with honey and beeswax. For the first day a picnic dinner is scheduled in one of the beautiful parks alongside the Red River. A detailed program may be secured later on from your secretary or from J. A. Munro, secretary of the North Dakota Association at Fargo. Association members will be circularized. Of course, good speakers are being secured. Plan ahead now to attend this meeting.

— o —

International Exposition

The International Exposition for beekeeping is to be held in 1938 at Namur, Belgium. The dates set are August 27 to September 7.

Perhaps some of our readers will be in Europe and able to attend this International Conference.

For further particulars, the treasurer of the Conference, Mr. E. Beauvillers, 16, route de Marche, Erpent-Jambes, Namur, Belgium should be contacted.

Some of our older readers will remember when the International was held at Quebec a few years ago.

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Texas Beekeepers Association

The sixty-first annual meeting of the Texas Beekeepers' Association will be held at Lockhart, Texas, July 1 and 2. These dates were selected by the executive committee at a meeting held at Lockhart May 11 and were chosen because this period does not clash with agricultural meetings being held over the state and especially at College Station. The first meetings will be held at ten o'clock Friday morning, July 1. At this time the first business meeting will be held, addresses of welcome, and papers given. The afternoon session will be a series of papers and some musical numbers which the

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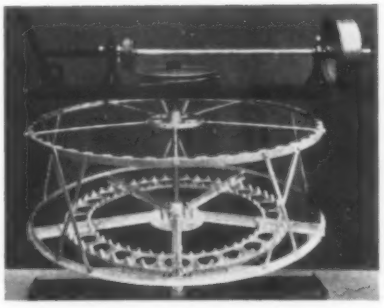

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Queens 60c each, any number

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50c FOR QUEENS : 2-LB. PKG. with Queen $1.95 : 3-LB. PKG. with Queen $2.55
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City of Lockhart has promised. At four o'clock a field trip will be made to the Luling Foundation Farm. The Beekeepers Buzz will be held Friday night. Saturday morning the final business session and remainder of the papers will be given. The beekeepers have been extended a warm welcome by the people of Lockhart and it is hoped that a large attendance will be present to take advantage of this attempt to make the meeting the largest, best meeting ever held.

H. B. Parks, Secretary
Texas Beekeepers' Ass'n.

— o —

New Oklahoma Association Movement

A letter from A. B. Harris, secretary of the Northeastern Oklahoma Beekeepers' Association, indicates that interest is running high among the members. The association is constantly acquiring new members and it was recently voted at a special meeting to sponsor the organization of a state association. It would appear that they are really interested down there in the betterment of beekeeping conditions. All Oklahoma beekeepers are, we presume, invited to participate.

— o —

Michigan Beekeepers' Association

The Executive Committee of the Michigan Beekeepers' Association have chosen August 3, 4 and 5 for the summer meetings of the association. R. H. Kelty.

— o —

Did You Know?

Beekeepers of the Southern States' Federation: Did you know that our annual meeting will be held at the Fort Sumter Hotel, Charleston, South Carolina, November 28, 29, and 30?

Did you know that the first independent government established in America was set up in Charleston by the Provincial Congress, meeting in July, 1774, in what is now called the old Exchange Building at the foot of Broad Street?

And did you know that the first steam locomotive train ever to operate with passengers and freight was "The Best Friend" from Charleston to Hamburg, S. C., in 1831?

Did you know that fifty-two battles have been fought in the vicinity of Charleston since the city was founded?

And did you know in the interesting graveyard of St. Phillip's Church are buried John C. Calhoun, the South's greatest statesman, and Edward Rutledge, one of South Carolina's signers of the Declaration of Independence? E. S. Prevost,
South Carolina.

Beekeeping Course in Summer, University of Illinois, June 20 to August 13, 1938.

As a part of the summer session of the University of Illinois, a course in Essentials of Beekeeping (S31) will be offered with Assistant Professor V. G. Milum as instructor. The fundamentals of yearly beekeeping practices will be covered during the eight weeks' period, including lectures and laboratory with actual practice in apiary management in the University Apiary, supplemented by trips to nearby commercial apiaries.

The course is for two credit hours, open to students with sophomore standing, meeting at 1 to 4 each Tuesday and Thursday. Persons over 21 years of age do not need to meet the sophomore standing requirement and may enter the course by registering as unclassified students, not candidates for a degree. Graduate students with credits in beekeeping or comparable experience may register for a research problem in beekeeping with graduate credit. Seniors may register for both the general course and a problem course if taken concurrently.

In addition to the two credits in beekeeping, students may enroll in other courses up to a total of eight credit hours. The schedule of Tuesday and Thursday afternoon will interfere very little with registration in other courses, the majority being offered at the morning hours.

Prospective students should send request for catalogue to the Registrar of the University, Urbana, Illinois, which gives complete information as to directions for obtaining admission, fees and courses offered.

The summer school registration fees include an incidental fee of $20 for students residing in Illinois and $30 for students not residing in the state of Illinois. An additional fee of $10 is required of students in the graduate school registering for the first time. A fee for laboratory courses amounts to $1.50 in the course in beekeeping. Text books for the course, a bee veil and hive tool should amount to $2.50 to $3.75.

For students of Illinois, taking only the two credit course in beekeeping, the fee is only $10 plus the laboratory fee with an additional $5 for students not residing in the state.

— o —

Empire State Honey Producers Association

You are invited to attend our annual picnic to be held at Chazy Orchards, Chazy, N. Y. located on Lake Champlain, Saturday, August 13, 1938.

Plan a real week-end vacation see the world's largest McIntosh Orchards. Also roadside markets where honey and fruit are sold on a large scale. You will also have a chance to cross the new bridge connecting U. S. with Canada.

For full particulars write E. T. Cary, Sec'y., Midland Ave. & Tallman St., Syracuse, N. Y.

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Illinois State Meeting June 19

The third annual mid-summer meeting of the Illinois State Beekeepers' Association will be held Sunday, June 19, at the home of J. W. Klein, Freeburg.

Among the speakers for the day will be Assistant Director of Agriculture, B. W. Debord, Ethel Van Gilder, M. G. Dadant, C. L. Duax, V. G. Milum.

Frame-nailing and smoker contests will be held with suitable prizes awarded the winners. There will also be an attendance prize. Bring your picnic basket, or eat at the hot-dog stand on the grounds. All beekeepers are welcome.

O. G. Rawson.

— o —

Wabash Valley Round-Up

Plans are already underway for the Annual Wabash Valley Round-Up to be held again at the Newport home of Indiana State President Lee R. Stewart, in September. Thus far program arrangements are only tentative, but there will be three or four short talks on queen-rearing, queen finding, hive nailing. There will be various entertainment features and, of course, the famous catfish fry.

This is an affair which Illinois and Indiana beekeepers have learned to anticipate. Various announcements concerning the meeting will appear as soon as plans mature.

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Bartholomew County (Indiana) Meeting

The Bartholomew County beekeepers have planned a field meet to be held at the home of E. J. Spaugh, northeast of Hope, on Saturday afternoon, June 26. Beekeepers in adjoining counties are invited to join with them.

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Madison County (Indiana) Meeting

The annual meeting of the Madison County beekeepers will be held at the home of Peter C. Hoppes, on State Road 32 by the Edgewood school, west of Anderson, on Saturday afternoon, July 30. Details of the program will be announced later. Beekeepers in the surrounding counties should plan to attend.

— o —

Saline-Gallatin County Meeting

The next meeting of the Saline-Gallatin County (Ill.) Beekeepers' Association will be held on June 4, at the home of Louie Vannis, Harrisburg.

Rex Stricklin, Secretary.

Institute News

Summer meetings with their fun, frolic, and education are just ahead. Getting folks interested in coming to the meetings is, of course, the first step. A front page write-up in the local paper before the meetings will arouse a lot of interest and it is easy to get such cooperation from your editor if he is assured that the meeting is going to be interesting. Invite him to attend the meeting or take him along with you if necessary. Getting him to the meetings will assure you of a good write-up after the meeting and this means a bigger crowd for the next one. The cooperation and assistance of a few of the leading business men and women will be a drawing card for others. We dare say that once they become fascinated with the honey story they will become enthusiastic users and boosters for it.

Definite committees for arrangements should be appointed and the suggestion that they run a "three-ringer" so that everyone finds something of interest to himself may be the keynote to a most successful meeting. Discouraging lulls in the day may be avoided by previous arrangements for substitutions in the event of last minute cancellations. A careful budgeting of the time and a strict adherence to the budget helps to keep everyone "on his toes." A varied program is always more interesting and may include such specialty features as exhibits of equipment, honey, honey products, samples of sales promotion helps—new labels and containers, honey literature, and contests and demonstrations.

The ladies can lend a helping hand with their HONEY WAY lunches. And they will find the meetings equally as interesting as the men after the organization of a Ladies' Auxiliary. Their own organization with its specific aims and definite program will be an inducement to local cookery contests and demonstrations. Local demonstration agents and also home economists will be glad to cooperate in sponsoring such activities and honey consumption can be greatly increased in your own localities by inducing everyone to enter the contests or attend the demonstrations.

Last, but not least, the children must be taken care of so that mothers and fathers may be free to get the utmost enjoyment out of the meetings. Some local high school girl will no doubt be thrilled at the prospect of developing a day's program in which the children can all take part.

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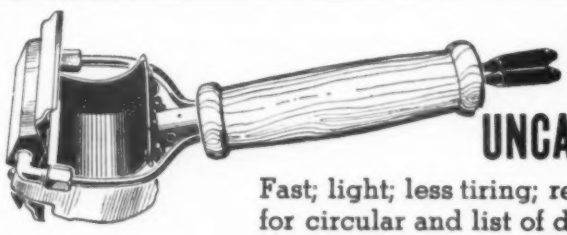
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3 lb. package with queen	$2.55
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Mated Italian queens	.50

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Prices reduced but quality the same. Send to us for genuine Caucasian queens and bees, gentle, long tongued with many high production records to their credit. Price: untested queens postpaid each **50c**; tested each **$1.50**. Select tested each **$2.00**. Breeders each **$5.00**. Package bees sent express collect. 2 lbs. with queens each **$2.30**; 3 lbs. with queens each **$3.05**. Bees and service guaranteed, no disease.

BOLLING BEE CO.,
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gladly cooperate in preparing detailed suggestions for meetings. Samples of promotion helps, outlines for demonstrations and cookery contests, programs for auxiliary organizations and operation, suggestions for special features, exhibits, and entertainment will be prepared upon request.

—o—

The new issue of INSTITUTE INKLINGS, together with copies of the three new leaflets, Honey Facts, Prize Winning Recipes, and Honey Helpings, was mailed to all Institute members during the latter part of April.

—o—

A mailing made to Home Service Directors the first of May has brought 89 requests within the first two weeks after the mailing for the copy of "100 Honey Helpings" offered free upon request.

—o—

Requests for information and service from the institute office continue to increase. A summary made May 1 showed that there was an average of 80.4 pieces of outgoing mail per day for the first four months of 1938. The average for the same perod in 1937 was 55.9 pieces per day.

—ABJ—

Spray for Package Bees

A bulletin (E-427) has been received from the United States Department of Agriculture, Bureau of Entomology and Plant Quarantine, "New Recommendations for the Installation of Package Bees, Using a Spray and Direct-Release Method," by C. L. Farrar, of the Division of Bee Culture.

In experimenting with the spray and direct-release method of introduction, Dr. Farrar and his associates worked in the conventional manner with 800 packages of bees in various localities over the United States, obtaining egg-laying data on 555 of the queens which accompanied the packages.

A pressure sprayer was used, and is recommended in the bulletin, and with it was obtained the double advantage of gorging the bees and of wetting them so that they could not fly when released. Having gorged the bees, the procedure was to spray the package to prevent flight, and then to empty it of all bees, by cutting the screen and pouring the bees into the hive. The queen, in her cage, sprayed in a like manner, was dropped into the bee mass on the floor of the hive.

Egg-laying data indicated that the cage-release method of queen introduction generally in use at present "results in an undesirable loss in egg-laying time for the average queen."

Dr. Farrar finds for the sprayer method of feeding package bees: a more thorough feeding, less labor, elimination of syrup waste, and an effective means of preventing bees from flying while being shaken into the hive.

The combined spray and direct-release method when tested on a commercial scale (355 packages) resulted in the loss of only 6 queens, or 1.7 per cent. The minimum time required for initial egg laying was 6 hours.

To quote from the bulletin: "A comparison of the two methods shows reduction of approximately 50 per cent . . . in the number of queens lost during introduction and an approximate saving of 3½ days in egg-laying time for queens introduced by the spray and direct-release method, as compared with the results obtained by the customary method, where the bees released the queens."

The bulletin concludes with a step-by-step illustrated direction for using the spray and direct-release method and should be of considerable interest to any one whose activities approach handling bees on a commercial scale.

—ABJ—

How Long Will Package Bees Live

By Hy. W. Sanders,

Manitoba.

It looks as if we would have to enlarge our ideas of how long package bees will live, provided they have enough food. We have always considered that speed of delivery and quick hiving were essential to save them, but the following instance seems to indicate that with enough to eat, they will last considerable time. We have just returned from Texas with our annual truckload of bees, and while visiting with Mr. H. E. Graham for a few days, waiting for our load to be assembled, I noticed a crate of three packages in his warehouse. He told me that these had been ordered by a man in Nebraska and had been shipped on Friday, April 15. One of the packages had died, possibly, in Mr. Graham's opinion through being exposed to the sun, and the buyer refused the shipment. So it had been returned to Cameron, Texas, and reached there on Tuesday 19th.

I asked Mr. Graham what he was going to do with it and he promptly offered to give it to me if it was of any use. So I took it, discarded the dead package and refilled the feed

cans. We left for home on Thursday night, April 21st and did our 1500 miles in 60 hours, including all stops as well as customs at the border. These two packages had been put in the cab of the truck as the rest of the space was all occupied, and it was not until Monday 25th, after most of the other bees had been shaken, that they were attended to. I was pleased and surprised to find the package in fine shape with very few dead bees, and inspection since has shown that they are among the best in the yard. They were more than ten days in the package.

Incidentally the refusal by the Nebraska beekeeper showed another reason why package shippers get grey hairs. He wrote and said that the bees must have A. F. B. because he could smell it. That was why he refused the shipment. Mr. Graham in his reply pointed out that even if his bees were affected with the disease, (which was not the case), the smell would not have arisen from the package as it arises from dead brood and not adult bees. However we all know that if a package or a colony dies from heat and the bees decompose while wet, they can be most offensive.

It looks from this instance that if package bees can be provided with plenty of feed in a form that will be available to the bees throughout their journey, they may be capable of being shipped much longer distances than we now consider practical.

—ABJ—

Keeping Spare Queens

A handy way to keep a few spare queens is to let some colonies start brood in shallow supers, then raise these supers above an excluder, take out a frame, divide the super in three compartments with tight division boards, bore a hole in each side, and one in the back for the center division and introduce cells, virgins or laying queens. Sometimes the center compartment will draw most of the bees, so give that compartment the least brood.

These nuclei will take care of themselves when established, and if they need more bees, the young bees will come from below from the full colony. If they are crowded, the bees will go down into the full colony. Also, they carry food from below.

You must put all cells or all virgins in one hive because if one becomes mated and starts to lay ahead of the others, the others become deserted. Also, if this reservoir is fixed before you have supered, you had better put on an excluder, an empty super of combs, then your mating or reservoir super with an excluder under it also.

John Bruce,
Illinois.

Your Honey Crop for 1938

Depends upon your QUEENS. Replace all poor and failing QUEENS as soon as practical.

I am specializing in queen-rearing. I have two well known queen-breeders (men who have spent years rearing queens for the market) and with our early honeyflows all queens are reared under natural conditions. They can't be beat.

Untested queens **50c** each. 2-Lb. package of bees with queen **$1.95.** 3-Lb. package of bees with queen **$2.55.**

Dealers and buyers wanting 25 or more queens or packages, write for prices.

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(They Speak for Themselves)

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HERMAN McCONNELL (The Bee and Honey Man)
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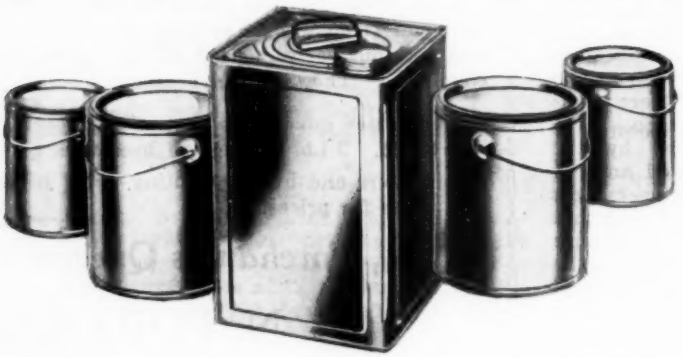

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Crop and Market Report

Compiled by M. G. Dadant

For our June Crop and Market report, we asked reporters to answer the following questions:

1. How is the crop so far?
2. How well are bees building up for the main flow.
3. Honey plant conditions.
4. How do you consider honey prospects compared to last year?
5. Much honey left unsold?

The Crop

Naturally no indications of a crop in the northern sections except the stimulative flows in most sections have been satisfactory, being somewhat curtailed as to the amount of good to the bees owing to cold and damp weather in many sections.

In the southeastern states it is doubtful whether the honey crop up to May 15 has been as good as last year and probably no better. This does not apply however, to Georgia which apparently has had a better crop than last year and to Florida which has at least had the equal.

In the southern sections the flows have been probably better than last year when conditions were very backward. This year they have been two weeks ahead.

In Arizona, the early crop conditions have been curtailed on account of drought and in California sections the orange crop was very disappointing and sage also. Texas also reports early yields under par.

All in all, it is likely that the early crop has not been the equal of last year owing particularly to the failure of the orange crop in California.

Bees Building Up

In practically all instances, the bees have been building up in satisfactory fashion even during the cold, chilly weather. This is largely due to the fact that honey plants and flowers are from a week to two weeks ahead of time in all sections of the country. This has been particularly true in the southern sections where bees built faster than desired, especially in the package sections, being ready for "shaking" far ahead of shipping time.

In the north central sections, as well as in the New England states, New York, etc. and farther west, conditions have been at least normal for bees and perhaps a little better than normal. Some swarming has already been reported in southern Minnesota and other similar sections. Cool weather, however, has been a drawback to the building up of package colonies.

Honey Plants

Many sections of the country last fall went into winter with a scarcity of honey plants. This was particularly true of the southern intermountain sections and some sections like northern Illinois and into Pennsylvania and eastern Ohio.

This has been partly made up by the extremely desirable weather this spring and most sections now reporting honey plants at least 100 per cent. There is still a scarcity comparatively in Nebraska, Kansas and down into Oklahoma, as well as in some sections of Colorado. The same applies somewhat to western Dakotas and to Montana. However, on the whole, honey plants are far better than one would have realized last fall and in most sweet clover and white clover sections are really luxuriant and perhaps from a week to ten days ahead of the usual blooming time.

Prospects

With conditions as reported above, one would naturally assume that prospects were desirable and such is the case. We would anticipate that the country over prospects are at least 125 per cent and perhaps even better than they were last year. In other words, the chances are for 25 to 50 per cent more honey than was harvested last year if the weather conditions are satisfactory and bees and plants carry through to ultimate conclusions.

Honey plant conditions seem to be particularly backward in Alabama, Texas, Pennsylvania, perhaps northern Illinois, and some southeastern sections of Minnesota and the same plains area which suffered so badly from the drought last year and which has in many cases a scarcity of honey plants. So much so that some of the producers are moving into more promising sections.

Naturally in the section of Mississippi and Alabama, most plants are out of blooming. Prospects in Texas look no more than normal, if they will even approach this. Georgia and Florida still have good anticipation for the balance of the season.

Naturally, we all look to California as to what prospects are to be for honey inasmuch as they are the first major flow state. Southern sections apparently are looking for not any more than last year and perhaps much less.

Central and northern sections apparently are satisfied that the average flow may come somewhere near last year and perhaps may be much better. One prominent man from California guesses the average for the entire state at about 80 per cent of last year.

Naturally, the next thirty to sixty days are going to determine what the crop is going to be. It is our opinion that we will most likely have much more honey than last year with only a bare possibility of a shortage. Honey plants are there, bees are there and weather conditions so far have been satisfactory to bringing both of them up to a normal peak.

The intermountain territory has had ample snows and irrigation possibilities are desirable with perhaps a little shortage in the available honey plants, owing to crop rotation changes. The Canadian provinces undoubtedly are better situated than a year ago when Saskatchewan and Alberta showed such drought conditions. Throughout all of these provinces, conditions are more nearly normal even in the dry sections of last year where sweet clover has come back remarkably. All in all, we believe that conditions are much more favorable than last year and at least as favorable as the year before. We can hope that we will have no such drought hit us as was the case in 1934, 1935 and 1936.

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"YE OLDEN TIMES" straw beehives attract customers at honey stands. Also charming for gardens. Photos free. G. Korn, Berrien Springs, Mich.

Beekeeping in Fukien Province

This is the title of a reprint from "The China Journal" published in March. It is written by Prof. Claude R. Kellogg, Dept. Biology, Tso-Hsin Cheng, Fukien Christian University, Foochow, China.

Beekeeping in Fukien Province is being carried on today much as it has been for the past hundreds of years. The following, written about 232 A. D., might have been written about beekeeping there today; "In the process of rearing wild honeybees for domestication at home, the people make a wooden box in which several holes are bored. Inside the box they place some honey and catch the bees. These bees, after a day or so, will fly out and bring materials for making honey. The amount made depends upon the prosperity of the year."

The box hives in use today in Fukien, are convenient, effective and pleasing in shape, in striking contrast to the ugly boxes and "log gums" found in other countries. Hand made, of unpainted wood in the villages about Foochow, of white plaster and blue woodwork in the villages about Amoy, these hives hang up under the eaves of the houses, secure against wind, rain and sun, out of the way of animals and children and safely tied to prevent their being carried off by acquisitive neighbors.

They average a little higher in content than a single 10-frame Langstroth hive. Both ends may be removed and sometimes the bottom is hinged so that it can be let down giving free access to the hive for operations. The front entrance is composed of some fifteen or twenty small holes about bee size and capable of being closed by a sliding door. No packing or wrapping is used and the strong colonies go through the winter in good condition. There are no frames and no foundation, the bees building their combs to the under side of the top as they wish.

In the majority of the hives, the combs are built crosswise. The deepest combs are in the center and the smallest ones at the two ends. It is easy to inspect them for eggs, larvae and queen cells. A little smoke from an incense stick or paper taper will cause the bees to move off the combs or the bees may be easily brushed aside with the fingers or caused to move about by blowing softly on them. Chinese bees, although they will at times sting viciously, are quite easy to handle and I have often cut the combs out of box hives and transferred them to modern hives without the use of veil or smoke.

As swarms issue, the remaining queen cells are destroyed and the swarms may easily be captured, and hived in new homes. The newly captured swarm will sell for $2.50 to $3.50 and the established colony from $5.00 to $8.00.

Migratory beekeeping is practiced by the large beekeepers. Four hives are carried at once, two on each end of a carrying pole, and, during the season, one may sometimes see strings of load-bearers carrying hives to their new destination, often twenty or more miles away.

The main crop is from litchi and lungan in May and June. In November the loquat and the tea plant furnish nectar to provide stores for winter and in early spring the rape and mustard provide nectar and pollen for active brood rearing. Fukien has a long season of blooming plants, most of which produce little surplus. It is easier to produce bees than honey. The litchi and lungan season offer quantities of delicious honey for a strong colony.

—ABJ—

Boys and Girls Bees and Honey

By C. M. Littlejohn,

Washington.

That notable organization known as the 4-H Club of boys and girls, linked by common interests throughout the country, may have another "H" stand for honey, inasmuch as some of the youngsters show remarkable aptitude in this direction as little beekeepers and producers of diversified honey products.

Preparations are well under way early this fall in the Pacific Northwest to give deserving attention to youngsters' beekeeping in a special bees and honey division of the 4-H Club exhibition that will be a highlight of the vast western Washington fair at Puyallup this autumn.

The 4-H Club shows the labor and agricultural pursuits of the healthy boys and rosy-cheeked girls, and fosters early interest of the youngsters in honey. "As the twig is bent," you know, perhaps finer honey will be produced. In any event, the zealous little members of the 4-H Club are again exhibiting this year at the Washington display of honey products, some of the most delicious sweets from their well kept hives—frames and extracted honey, and fine Italian bees, all according to Hoyle, or according to the education and high standards of their elders.

While cash awards are nominal in the boys and girls' grouping of bees and their honey, yet interest and excitement are among the keenest of the fair, and their exhibitions of white and dark amber honey, granulated honey, one-pound combs of near perfect scoring, and thriving healthy queens and their hard-working colonies, are viewed with the most wrapt and undivided attention and enthusiasm.

Department of this spectacular agricultural fair highlighting the honey products of the youngsters, along with their sewing and cooking arts, and their own specially raised livestock, is under the able direction of A. M. Richardson, of Tacoma, superintendent, and Mrs. W. S. Colman and Reed S. Hansen, assistant superintendents.

Some of the little beekeepers who display their honey products with real professional pride and winsome charm are extremely young, inasmuch as the 4-H Club itself has a junior section composed of wee folk in the lower age brackets—some as juvenile as ten years of age and up to thirteen.

Of course, the older group in the senior division starts at 14 years, and a fine sense of professionalism and sportsmanship displayed by the youngsters makes the 4-H exhibition afford each year a source of unending inspiration for neighbors, relatives and friends of the children who are the hope of America's Agriculture Tomorrow—and to some extent, of west Washington's honey culture.

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Large, gentle, and Super-Productive!
Original Italian stock but improved and bred up over a long period of years. Every queen is young, powerfully productive, and **personally reared.**

Queens 50c ea. postpaid. In lots of less than 5, 60c. 2-lb. pkg. bees with queen $1.95. 3-lb. pkg. bees with queen $2.55. Quantity discounts to dealers.

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HONEY HARVEST WEEK—October 24-29

Every Institute member, new or old, will be furnished with quantity of streamers for store window free of charge.

RECIPE CONTEST

A contest designed to promote greater use of HONEY in Cookery will be sponsored again in connection with the National Beekeepers' Conference December 5-7.

See page 261 in this issue of American Bee Journal for more information. New and more complete details will appear in next month's issue

AMERICAN HONEY INSTITUTE

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Stronger Colonies

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Try our prolific well bred three banded Italian queens, **50c ea.**

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JOY QUEENS
Leather colored
Stock gentle and good honey gatherers. 50c each.
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Most excellent strain, three-banded stock. One queen 75c, 3 for $2.00. Stamps taken for single queen. Koolairy veil $1.50 postpaid. SAFIN cage 15c ten for $1.00.
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ATTENTION!
This little ad may be hard to see and you may overlook it, but you can't overlook the value of **Stevenson's** line bred **Goldens.** They won't let you.
QUEENS **50c;** 2-lb. pkg. with queen **$1.95;** 3-lb. **$2.65.**
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Descriptive circular supplied.

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For a good honey crop make sure you buy good bees and queens and to assure you of it try our strain. They work good in damp cool weather. **No disease, satisfaction guaranteed.** Write for circular.
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ALAMANCE BEE COMPANY,
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MOTT'S Northern Bred Italians
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1, **$1.00;** 2 or more **75c** each; 50, **70c;** 100, **65c** each; Fair to good breeders, **$2.00, $3.00, $5.00;** Virgins **40c.** Free list and literature.
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Fancy Golden Italian Queens

Untested 50c; Tested $1.00; Breeders $3.00 to $5.00 each. These queens build colonies that it is a pleasure to work with. Good honey producers.

Guilford Apiaries, Guilford College, N. C.

QUEENS 50c

Our queen yard will continue to operate all summer, producing the best queens of the season. May we have your order.

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PACKAGE BEES and QUEENS

Orders shipped the day received 2 lb. pkg. with young laying queen, $1.95 each; 3 lb. $2.55. Each additional lb. bees 60c. Queens 50c each. 15% Discount to dealers

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We mate all our queens from strong 3 standard frame nuclei. Large size.

Young laying queens 50c
2 lb. package, queen $1.95
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Prompt delivery. Guaranteed to please

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BEE SUPPLIES

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PALMETTO QUALITY QUEENS

for balance of season 50c each.
15% discount to Queen dealers. No disease. A square deal.

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Select untested queens as good as money can buy. Guaranteed live delivery. Our queens are reared right.
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Service and Quality Guaranteed.
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2 Lb. Packages with Queens		3 Lb. Packages with Queens	
1-10	$2.00 each	1-10	$2.65 each
11-100	1.85 each	11-100	2.50 each
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1-10	$1.50 each	1-10	$2.15 each
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Home of "MAGNOLIA STATE" Strain Italians.

BEES AND QUEENS

Prolific, Gentle, Yellow 3-Banded Italian Stock

Queens, untested, each	$ .40
Queens, tested, each	1.00
Two pound package with untested queen	1.50
Three pound package with untested queen	2.00

Queenless package substract price of queen

DANIELS' APIARIES, Picayune, Miss.

Attention, Honey Producers!

Our hives are full of baby bees to fill your June Package Orders.

	(1 to 9)	(10 to 24)	(25 or more)
2-lb. package with queen	$2.10 each	$2.00 each	$1.90 each
3-lb. package with queen	2.65 each	2.55 each	2.40 each
4-lb package with queen	3.10 each	3.00 each	2.85 each

And here is a package to store honey immediately 5-lb bees four frames brood and queen (1 to 9) $5.10 each; (10 or more) $5.00 each.

QUEENS

	(1 to 9)	(10 to 24)	(25 or more)
Select untested queens	50c each	47c each	45c each

Delivery: Queens by mail; Packages Express—charges collect; all loss replaced promptly, express prepaid. Requests for replacements of packages must be accompanied by Express Bad Order Report properly made out. Dead queens must be returned.

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The Postscript

Gossip About the Office in the Making of the Magazine

Henry Brown, of Cape May Court House, New Jersey, takes exception to my comment on the so-called "stingless bees" and offers to convince me that there are stingless bees in New Jersey.

My definition of a stingless bee is one that has no stinger. He differs with me in that he is willing to recognize a bee as stingless when it shows little inclination to use that organ. Anyway, Henry, we all admire those gentle bees that forget what the implement was intended for.

—ABJ—

So many urgent requests for seed of the Zofka red clover continue to reach me that I must repeat here that seed is not available at the present time. It is a new crop and has not as yet been grown in large quantity. Edward H. Kellner, of Czechoslovakia, writes me that there is none to be had in the country of its origin. He says that the supply at its best was very scarce.

—ABJ—

Carl M. Teasley, of Ooltewah, Tennessee, tells an interesting experience of cutting a bee tree in February and saving the bees. He even reared a young queen with which to requeen the colony. Sounds a bit early to those of us who live farther north to be transferring bees and rearing queens. A few hundred miles makes a big difference in the climate.

—ABJ—

In the Southeast from Washington to the Carolinas there are some very old hedges of box. While tender to frost, in suitable climates box is much used in ornamental gardening and is long lived.

D. W. Taylor, of Washington, D. C., calls attention to the fact that the bees work on box in early spring when both nectar and pollen are so important for brood rearing. There are a number of plants used in ornamental gardening which are valuable to the bees and which would be better known to the beekeepers if they were more plentiful.

—ABJ—

A Florida beekeeper who wishes to try the stingless bees of the tropics asks where they can be obtained. They can only be admitted to this country by permission of the Bureau of Entomology at Washington and application must be made there. However, I do not happen to know the name of any one in Central or South America who might be able to supply the stingless bees. Can any reader provide this information?

—ABJ—

J. B. Douglas, of Bonita, Arizona, sends me a specimen of bladder-pod **(Lesquerella)** which blooms in freezing weather. It seems very probable that bladder-pods are of more value to the beekeepers of the West than they realize. This one is found on dry hills from Nebraska and Kansas through Colorado and New Mexico to Arizona. Readers who have access to the 1930 edition of American Honey Plants will find it described on page 54.

—ABJ—

One species of bladder-pod is reported by H. B. Parks as common in South Texas and as the source of some surplus honey in early spring. At times an average of a super per colony has been secured in the vicinity of Uvalde. A better knowledge of the minor plants which yield occasional surplus would greatly increase the prosperity of our industry.

—ABJ—

There are several new forage plants in our honey plant test plots this year. Included are the Kent wild white clover and the bird's-foot trefoil recommended to New York farms by Prof. Johnstone-Wallace, as well as the yellow flowered alfalfa, the annual alpha sweet clover and some others.

Since the welcome rains of April and May have changed the prospects in this neighborhood so completely, the Iowa Beekeepers' Association has made plans for a summer meeting at Pellett Gardens on Thursday, July 14. It is to be hoped that the weather will be more favorable than at the time of the former meeting in 1936, when it was so extremely hot and vegetation was showing such bad effects from the drought.

Rain has made a great change, not only in the appearance of the country but in the state of mind of the people. After all, we are still dependent upon the weather.

—ABJ—

Tuesday, June 14, is the date of the annual field day for the Iowa Horticultural Society and its affiliated branches. At that time all meet together at the College of Agriculture at Ames to see the work of the college which is of interest to this group. Visits are made to the gardens, the greenhouses, the vegetable and fruit plots and to the apiary. This appears to be a unique arrangement, but it serves to provide opportunity for members of the different groups to become acquainted and to learn what the others are doing.

—ABJ—

An interesting letter comes from a Georgia correspondent, who tells of the problems in beekeeping in a region with good honey flows in early spring and late fall, but with nothing between. With a long summer during which there is no bloom of honey plants of importance, there is urgent need to find something to fill in the gap. Cases like this emphasize the need of a constructive program of bee pasture improvement.

—ABJ—

Perhaps if our beekeeping organizations would get into closer touch with the agronomists it might be possible to work out programs of mutual benefit to the beekeepers and the farmers. More and more specialists are coming to realize the need of bees in the pollination of a great variety of crops. This knowledge makes it easier for the beekeepers to get attention when they seek assistance from specialists in the agricultural institutions.

—ABJ—

A country school teacher brought her pupils for a visit to our little farm recently. They were interested in many things, including the wild flowers, but the teacher reports that the thing which excited them most and which they continue to talk about was the bees. To look into the hive and see the young bees in the cells and to see the queen, provided a long to be remembered thrill.

—ABJ—

Beekeepers of Wisconsin and Minnesota, as well as Iowa, have found it to their advantage to affiliate with other groups to their mutual profit. Results have been such as to encourage those of other states to seek similar cooperation. As the relation of bees to flowers becomes better understood, this kind of co-ordination of association activities is greatly encouraged.

—ABJ—

One of the first colonies put to the test for disease resistance in 1935 now has a queen of the fourth generation of the same stock yet there has been no recurrence of American foulbrood. This colony very successfully removed all trace of the disease within a short time and demonstrated beyond question that some bees are able to withstand a heavy exposure quite successfully. The problem now is to breed a strain of bees which will insure that an entire apiary will behave in the same manner.

FRANK C. PELLETT, Atlantic, Iowa.